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Staging the Come-back of an Old-fashioned Shop

How an Antiquated Plant, Abandoned After Hopeless Operation Under Receivership, Was Established on a Profitable Basis

By H. R. Simonds

IF THERE is anything more depressing in the broad panorama of American industry than an abandoned plant, we have yet to see it. The weather-stained walls, broken windows, dilapidated doors, rusted smokestacks, and railroad siding overgrown with rank grass and burdocks present a scene of almost unparalleled desolation.

Yet this sight is not uncommon. One cannot travel far in the industrial belt of the nation without encountering one or more of these forlorn evidences of former manufacturing activity. They are the graveyards of industry.

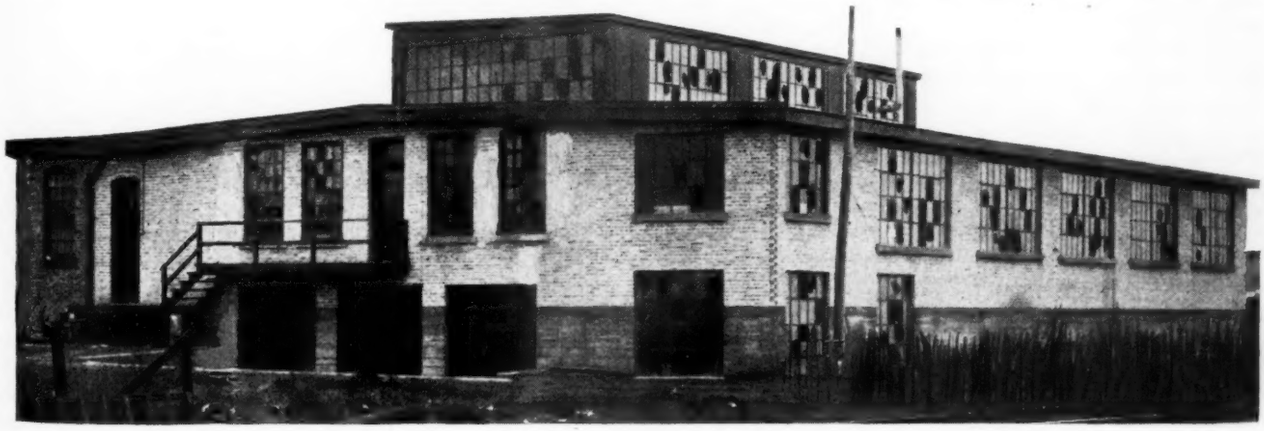
In 1924 a few men of vision bought one of these abandoned properties. They provided capital for its rejuvenation and entrusted its management to the hands of an energetic executive. Today—in spite of terrific competition—the business is on a profitable basis. The once shabby buildings now are bright and clean. Well-kept lawns replace the weed-grown yard. The whole shop hums with an activity that is bringing good wages to the workmen of the community, dividends to the owners and a useful product to the consuming public.

* * *

This is the true account of the come-back. For certain reasons the real name of the company and the identity of the man who has breathed new life into its activities cannot be revealed. For the purpose of this story, however, the company will be called the Hudson Machine Co. and the plant manager will be designated as J. D. Hadley.

* * *

The story really begins about six years ago when the Hudson Machine Co., under its original management, first encountered difficulties. It was engaged in making a useful household machine which involved the production of gray iron castings and the machining and assembling of more than 300 parts in each finished product. The company was in competition with about 40 other establishments manufacturing the same article. In 1921 the company lost money on its operations and the succeeding two years it operated



Many plants such as this may be made profitable, as demonstrated by Mr. Hadley

under a receivership. This expedient failed and the plant closed down completely.

Late in 1924 the property was purchased by a few men who had faith in the business in which the Hudson Machine Co. had been engaged. They felt that the good will and reputation of the company's product was a valuable asset and that under proper management the company could be put on its feet. Therefore, the new owners advanced the necessary money for reorganizing the company and gave Mr. Hadley a free rein in its management.

When he took over the plant, Mr. Hadley immediately saw that one of the most urgent needs was a product with sufficient distinctive advantages to win it acceptance over the competition of the 40 other similar products then on the market. He realized the fact that the styles and tastes of the buying public are changing rapidly and that the new product must be in accord with the new condition. He also realized that hand in hand with this new product must go a complete revamping of the physical facilities of the plant so that production costs would be kept at a minimum.

How Plant Was Modernized

Therefore, in tackling his new work he considered these two problems of about equal importance. While the engineering force was investigating the possibilities of new design, Mr. Hadley turned his attention to the plant itself. He found a group of old but substantial brick buildings, grouped on two sides of a swift river. A centrally located dam of 12 to 14 feet head furnished part of the power for driving the plant's machinery. When additional power was required it was generated in a steam power plant consisting of five boilers and two corliss engines. Power transmission throughout the plant was by long shafts and countershafts and a maze of belts.

On the side of the dam, opposite the power plant, was a discarded rusty waterwheel which had been idle for a quarter of a century. However it was of good design and except for some rust seemed to be in fair condition. The machine tool equipment was unusually good for an old plant, but its arrangement in many departments was poor on account of limitations imposed by the line-shaft drive. Since most of the machines were old, the plant was sadly in need of certain modern automatic and production tools.

The foundry which had been built in 1884 presented a real problem. A barn at one corner of the plant housed six horses and six wagons which were used for transporting material about the plant and for general carting. One part of the property consisted of a swamp with water several feet deep in places and which constituted a menace to the health of the workmen.

It was plainly apparent that the plant and its equipment in its present condition was woefully inadequate to the economical production of a high quality product. In brief, it was an old-timer and had not been kept up to date either in point of power, equipment or buildings.

Rejuvenates His Plant To Build Business

WHAT can we do to improve the usefulness and efficiency of our plant? This frequently becomes a problem with companies struggling along in an effort to pay dividends, or wallowing in "red ink". Sometimes new viewpoints and new suggestions help them out of their difficulties. There are men, who, like Mr. Hadley in the accompanying article, can see possibilities in old or run-down plants; the problem which confronted him is not confined to one company, nor is the vision for betterment limited to one man. A study of how Mr. Hadley proceeded to revamp his shop, however, with a keen view to improvements and economies; how he made the business pay, where formerly it was in the hands of receivers, will indicate methods by which others may accomplish comparable results.

Realizing that the power problem was fundamental, Mr. Hadley obtained expert advice as to the possibilities of using the water power available. It was soon evident that the river could supply enough power to drive the complete plant. The discarded waterwheel was cleaned and repaired, a new tail race was built and a small structure erected to house a generator. A second-hand generator was purchased at a small outlay and when the repairs and building operations had been completed the plant had an efficient source of power providing 100 horsepower.

The next step was to overhaul the four waterwheels on the other side of the river and to harness these to an electric generator. This did away with the cumbersome and complicated system of shifting and permitted Mr. Hadley to install individual or group motor drive throughout the plant.

As a result of these changes the two corliss engines now are idle practically all the time and are held largely for emergency use.

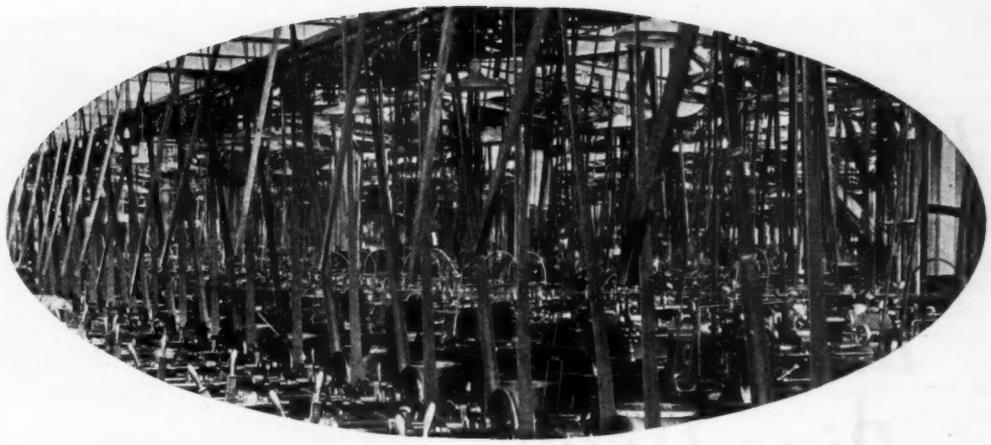
At about this time Mr. Hadley found that he could go no farther in correcting the faults within the buildings until he had improved their outward appearance. A few drainage ditches and a little grading soon transformed the swamp into a lawn. This transformation was so impressive that a neighboring plant caught the idea and improved its grounds. The two plants then erected a neat wire fence, dividing its cost between them, which further added to the appearance of the properties. All of this work, thus far, was done with a minimum of expense because sentiment at this time was against the unnecessary expenditure of a dollar.

Improved, Outside and In

It was found that the roads on the property were in bad shape. To remedy this situation resurfacing material was taken from a large cinder pile at the back of the plant. After the roads had been properly built up, graded and rolled, it was found that a large pile of cinders still remained. This unsightly heap in the backyard of the plant was removed at a profit, by the simple expedient of selling the cinders to the street department of the city in which the plant was located.

In studying the foundry problem, Mr. Hadley discovered that a new chimney was required. He also found that some of the buildings were too dark, as they had been built in the days when architects did not place much value on sunlight entering the plant through windows. Mr. Hadley found many of the windows too small and in one building he found massive brick walls without any windows. To remedy this situation, he had sufficient space in the walls torn out to permit the insertion of steel sash. This brightened the interior and at the same time Mr. Hadley obtained a sufficient number of bricks to permit him to build the desired chimney for the foundry.

The building which had been made lighter through the placing of new windows was made into a spray room for spraying castings. Previously the castings had been handpainted or dipped. The modern spray cabinets, not only made it possible to secure a better finish, but also to save about 60 per cent in the amount of material used. Incidentally, the better fin-



Industry's black forest. The maze of belts, pulleys and levers, such as Mr. Hadley cut down

ish created a new sales value for the product.

Early in the rehabilitation work the need of a well appointed millwright department was recognized. A building formerly used for storage was cleaned out and equipped for repair work. It has proved invaluable, not only in taking care of routine maintenance of plant and machinery, but also in building many items of mechanical equipment. For instance several metallurgical furnaces were built, which in conjunction with purchased furnaces, have given a good account of themselves in service. Special attachments for machine tools have been produced and numerous motors have been rebuilt in the millwright department.

As stated before, the foundry presented what was considered almost a hopeless task. The cost of completely remodeling it appeared to be prohibitive, so it was decided to see what could be done to increase production without modernizing it. As a preliminary move, the foundry was given a thorough cleaning. Windows were repaired and washed, walls cleaned and painted and all rubbish removed from the floor. The next step was to mark the molding floors and make provision for clear aisleways. Equipment was overhauled and placed in efficient operating condition. And then Mr. Hadley introduced an innovation by installing a piecework system. This plan had never been employed in foundries in this industrial section. Employers predicted it would not work; local molders opposed it. Nevertheless the change was made, and, as if to prove its effectiveness the rejections dropped to less than 5 per cent, in spite of the fact that many of the castings are of thin section and intricate design.

The machine shop offered opportunities for numerous improvements. The alternations in the power plant, previously mentioned, whereby the water power was transformed into electrical energy instead of being transmitted directly to the lineshafts, permitted a flexible arrangement of machine tools. This fact, coupled with the use of hopper feeds for certain machine equipment, has made it possible to group machines more conveniently. For instance, operations on one part of the Hudson product are performed on 11 machines all driven from one motor and attended by one man whose chief occupation is to keep the hoppers filled.

Many automatic machines have been added to the shop, including screw machines and multiple drills. The tool room also has been modernized so that today it provides all of the small tools, taps, dies, etc. required by the machine shop.

From the standpoint of manufacturing efficiency, the plant has been wonderfully improved. There are several models of the Hudson product, and the assembling, finishing and inspecting of each is done in a department concentrating entirely on that model. Assembling is a particularly interesting process for it combines assembling with lap finishing. At the left end of a long bench, an experienced man assembles the first group of moving parts. As soon as he has adjusted these he sets the assembled parts in a jig and causes them to rotate at high speed. He applies oil and flour emery to the bearing surfaces and allows the lapping action to continue until he has finished adjusting the assembly of the next machine. The lapped parts

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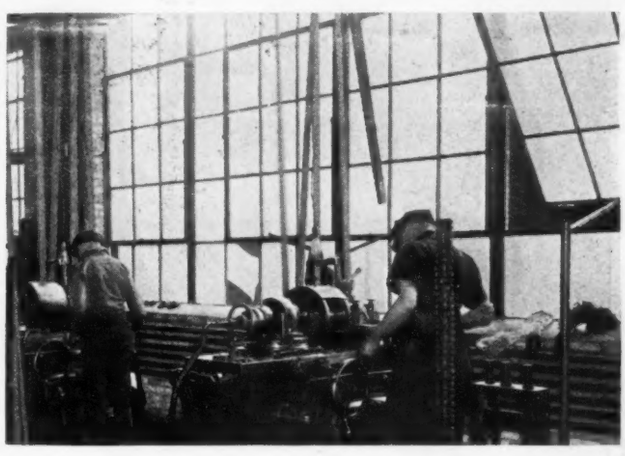

A study in light and shadow. By puncturing bleak brick walls and putting in sash, Mr. Hadley found means for improving layout and production

Heat Treating 20,000 Hubs and Piston Pins Daily

By Sidney Thompson

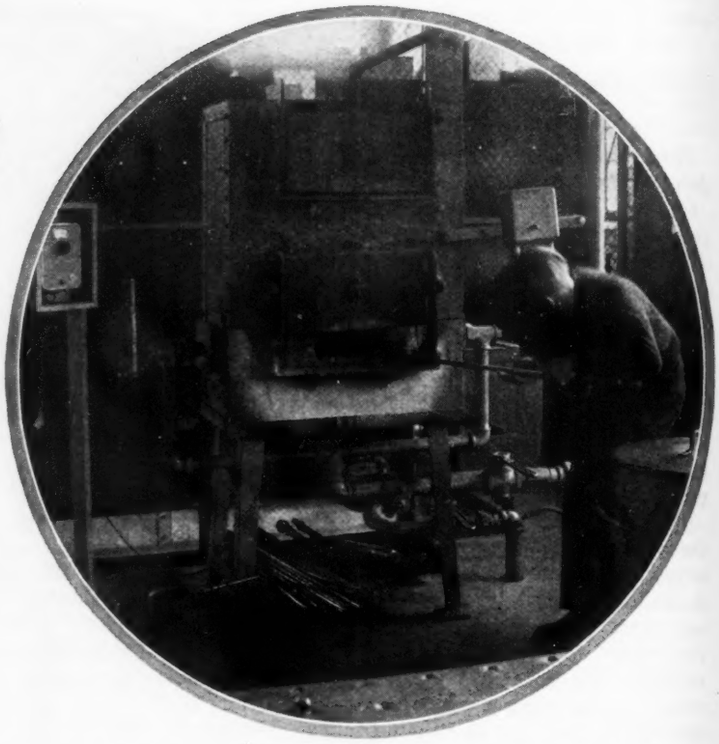

Fig. 1—In this small gas-fired hardening furnace the preheating chamber above is heated by the waste gases from the lower chamber

WHILE steel parts, both simple and intricate, are manufactured for many different purposes, they are as good only as the heat treatment they receive. This is particularly applicable to those parts required in the automobile. Recognizing these requirements, the Defiance Screw Machine Products Co., Defiance, O., has developed its heat treating department with the same exacting care which is accorded to its machine section.

The Defiance company is one of the largest manufacturers of automobile hubs in the world, producing as high as 10,000 a day and these are used on many popular makes of cars. Piston pins also are produced here for every make of car, truck and tractor in America and their production also averages around 10,000 daily. Other products of the company are large gear blanks, hydraulic jacks, etc., and the plant is equipped to execute large orders for special screw machine work.

The plant is housed in modern brick and steel buildings and is served with a spur line from the Baltimore & Ohio railroad. The main building is 3 stories high, the heavy screw machine department being on the first floor and the piston pin and grinding department on the second, with the third embracing the toolroom, machine repair and pattern shop. The heat treating department is located in a separate building and still another building houses the general offices.

Raw material in the form of castings and forgings, up to 18 inches diameter and steel rounds ranging in

The author is president, Defiance Screw Machine Products Co., Defiance, O.

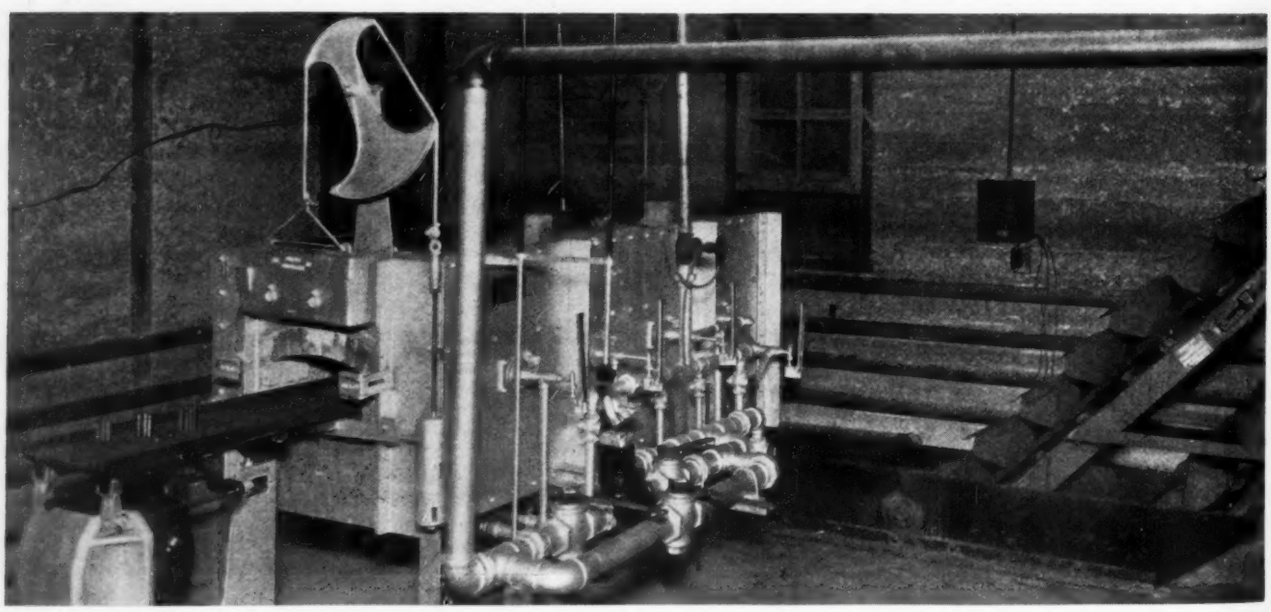

Fig. 2—Piston pins and washers are hardened in this automatic continuous gas-fired furnace provided with a shaker hearth. Note the floor-level quenching tank at the right and the flight conveyor

size up to 4 inches diameter are worked into the various products. Screw machines, both automatic and hand, are arranged in four rows on the first floor with aisles between. The automatic screw machines are driven with individual motors while the hand screw machines all are driven from one main shaft. A number of drill presses, broaching machines, grinders, threading machines, etc., are provided for performing the various operations.

Automobile hubs are made from steel forgings and malleable castings, the first operation being the boring of the center hole. The barrel end is then machined off and the thread end machined. The keyway is broached and six holes drilled, after which the thread end is smoothed, flange faced and barrel end threaded.

In the piston pin department are located batteries of drill presses, punch presses, millers, hand and automatic screw machines, broaching machines, grinders, etc. Grinders for washers are equipped with magnetic chucks and the faces are ground absolutely parallel. Piston pins first are cut to length in an automatic cut-off machine, carburized, drilled longitudinally in an automatic magazine machine and then finished by grinding. These pins are finished to almost mirror brightness and are accurate within 0.0002 inch.

The toolroom is a modern machine shop, completely equipped for every kind of tool work. Here are made the tools, jigs and gages used in all the departments of the plant, including reamers, chasers, backing off machines, box tools, etc. Two or three small in-and-out type of heat treating furnaces are provided for hardening steel in this section of the plant. These were built by the Surface Combustion Co., Toledo, O., and are fired with gas through automatic gas-air proportioners which gives them a high degree of efficiency.

One of these units, a hardening furnace shown in Fig. 1, is unique in that it is built with two heating chambers, one above the other. Only the lower chamber is heated and this is kept at a hardening temperature while the waste heat is utilized in the upper part for the preheat. This effects a saving in fuel consumption and maintenance ordinarily required by a separate unit for the preheat.

The main heat treating department is located in another building and is notable for its convenience of layout and ease of material handling. The case hardening and hardening equipment is especially economical in labor and fuel consumption. The washers and small parts first are put into a rotating carburizing furnace with the proper carburizing material and then quenched in a tank which is sunk so that the top is level with the floor. The parts next pass through the hardening furnace shown in Fig. 2.

Piston pins and other parts as well as the washers are hardened in this unit which is of the shaker type and worthy of description, inasmuch as it is one of the few furnaces of its type in the country. The unit is 14 feet long, 4 feet wide and 5 feet high and is heated with gas fired through nine burners, four on one side and five on the other. These burners are equipped with automatic gas-air proportioners for complete combustion which effect a material saving in fuel consumption. The formation of scale is reduced to a minimum by atmospheric control.

The furnace hearth is movable and actuated by a mechanical rocker which imparts to it a slow motion forward and a quick backward return at timed intervals. This causes the work to progress through the furnace in a definite time interval regulated by the speed and length of the rocker stroke. The correct temperature is maintained by an automatic pyrometric control.

At the outlet end of the furnace the work is automatically discharged into a water quench from which a flight conveyor removes it to a heated oil bath for the draw. This bath is shown in Fig. 3. Another flight conveyor removes the work from this tank and automatically discharges it into barrels. This furnace also was designed and built by the Surface Combustion Co. In another section is a battery of box, in-and-out type of furnaces for pack hardening as well as cyanide furnaces, etc.

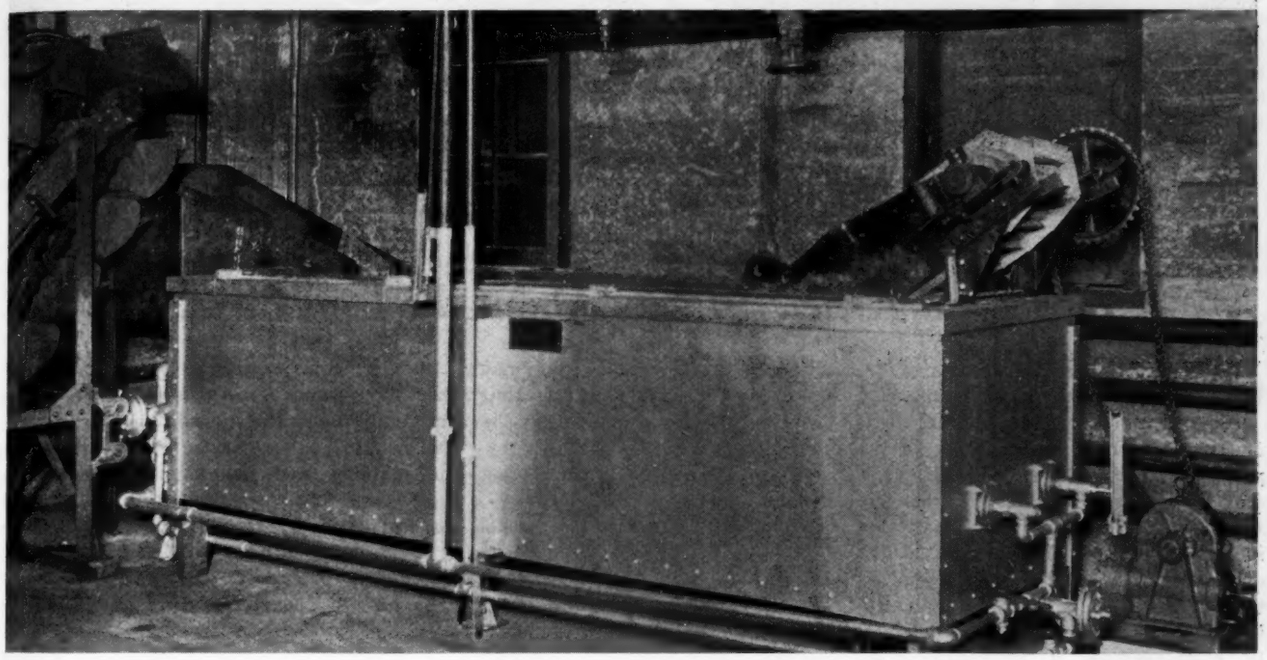

Fig. 3—The drawing operation in a heated oil bath is made continuous and automatic by the conveyor which charges and discharges the work

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In an area of 800 square miles where the states of Missouri, Kansas and Oklahoma conjoin are to be found the world's largest zinc ore deposits.

Second Article—Facts About the Iron Base

CLEANING is the process of removing drawing compounds, oils, grease, tar, paint, dirt, etc. prior to pickling; pickling is the process of removing scale, oxide, rust, and other foreign material from the surface of metals by immersing them in acid solutions. The basic features of importance, whether the metal is to be galvanized, tinned, or enameled, is that the surface should be perfectly clean before it is coated. As previously mentioned the first thing is to determine whether the material is iron or steel. The materials used and the method of pickling employed is different for iron.

Modern cast iron was not known until about 1350 when it was discovered that by smelting with an excess of carbon the iron could be made fluid. This molten iron could be poured into molds, and thus it became known as cast iron due to this property. The earlier types of furnaces ran the iron into sand beds. The sand molds were called pigs and the iron was designated as sand cast. Sand cast pig iron is cooled slower than machine cast pig iron and is not as clean.

Pig iron is an intermediate product, or semiraw material made in the blast furnace. After it has been remelted in the cupola and run into stove parts and other castings, it is then known as cast iron. The chemical composition of pig iron and the way it is made, have a decided influence on the cast iron made by remelting it. The effect that the cooling time has upon the chemical composition is illustrated by the analyses of a typical sand cast and machine cast pig iron.

Element	Sand cast per cent	Machine cast per cent
Silicon	2.50	2.50
Graphitic carbon	3.75	3.00
Combined carbon	0.25	1.00
Total carbon	4.00	4.00

Three factors influence the properties of pig iron and cast iron. These are the chemical composition, the pouring temperature and the accompanying slag.

The composition of cast iron and also the physical properties are affected by fluxes, the pouring temperature of the metal when cast and the cooling time. As with sand cast pig iron, cast iron will necessarily have sand adhere to the surface as long as sand is used in making castings. Some cast irons are much thinner and more fluid than others; some are thick and pasty and pick up a large amount of sand. As illustrated by the analyses given cast irons that are chilled, are much harder due to the fact that the carbon is held in the combined form. High-sulphur iron is thin and watery and the surface is of a different nature than high-silicon cast iron. These facts bring out the effect of the chemical composition upon the character of the surface which is to be pickled later.

Sand will almost always be found on the surface to a more or less degree depending on the chemical composition of the iron and the pouring temperature when the casting is made. Next the surface may have graphite flakes mixed in with the sand if the casting is poured at a high temperature and the iron is high-silicon iron. This is particularly liable to happen when the silicon is high and the sulphur is low. Then again this excess carbon may separate out as finely divided carbon and be intermixed with the sand. Still a different surface entirely is encountered when high-sulphur cast iron is made. The casting itself may tend to be full of blowholes, and the surface will have a scaly appearance. This surface will be free

THIS is the second of a series of articles on pickling processes, written exclusively for Iron Trade Review. The first article appeared in the Oct. 27 issue, and dealt with facts about the steel base. The present article deals with the preparation of gray iron castings for pickling. The author progresses with the subject in regular sequence, succeeding articles to describe various kinds of scale, the acids used, the construction and arrangement of tanks, chemical reactions, fumes and ventilation, and plant designs. The series of ten articles, one to be published every other week, will be a complete treatise on this subject.

from carbon as with high-sulphur irons a large part of the carbon is in the combined form. The temperature of the iron is also an important factor in determining what the surface will be like. Cold irons tend to be rough and sandy while hot irons are sharp and smooth.

In many instances before castings are pickled they are left in damp or wet places where they quickly are attacked by the atmosphere with the formation of light yellow, or dark red brown rust. Sometimes the castings are machined, drilled, etc., and in the machine shop they also pick up some oil and grease.

When a cleaning operation is not necessary the castings should first go to the sand blast. Too much stress can not be laid on the importance of a good sand blast job on the castings especially in the corners, around the edges, and in cavities and irregular parts of the casting. It is important that the surface of the casting be cleaned thoroughly. If great care is not taken in sand blasting, trouble will develop later either in galvanizing or enameling as the case may be.

Sometimes the quality of the work allows a tumbling barrel to be used, and this is effective if properly done. A casting which is tumbled so as to thoroughly remove sand, however, is almost certain to have its shape changed by the continual abrasion. Sharp corners, projections, and other similar parts are all worn to a greater or less degree. The castings when properly sand blasted all over should have a clean white, almost satin-like appearance. Before being placed in the pickle solution they are given a rigid once over again in the corners, pockets, cavities, etc., to positively be sure that these inconvenient parts have not been neglected.

In pickling cast iron a foreign material is encountered which causes endless trouble if it is tried to pickle the castings in an ordinary sulphuric acid pickle. It is now well known that sulphuric acid, either strong or weak, does not appreciably attack sand, or its slag which are always found on sand castings. The sand frequently refuses to come off from the surface and there then results a casting which is even worse than when the pickling was begun.

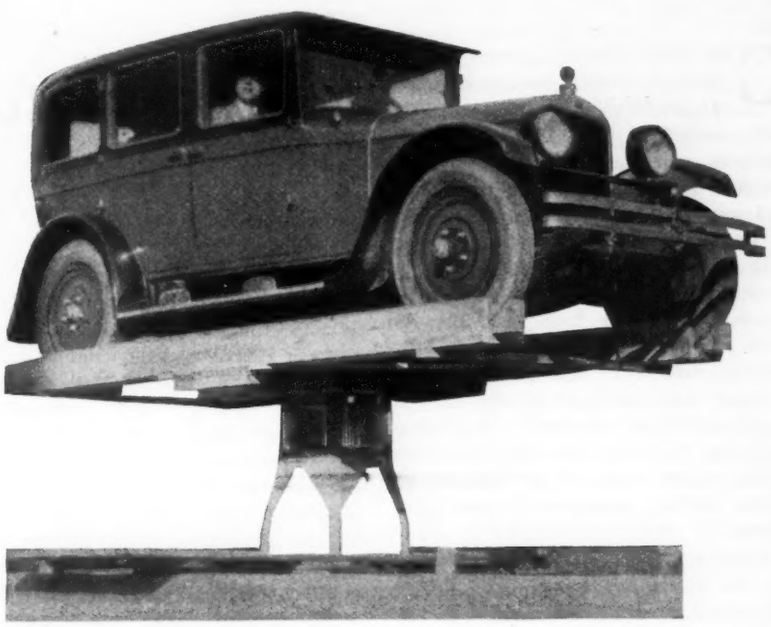
For removing sand and slag hydrofluoric acid must be employed. It is the only acid that interacts readily with sand. In the use of hydrofluoric acid for pickling castings the sand and slag are attacked and removed rapidly. The metal itself is not attacked to any great extent and iron or other metals are not particularly soluble in it.

The acid solution is made up of 1 part hydrofluoric acid, 1.2 parts of hydrochloric acid, and 12 parts water. This is about one 90 pound bottle of hydrofluoric acid to 12 gallons of muriatic acid and 120 gallons of water. The temperature is kept at about 130 degrees Fahr. and the castings will be pickled in about one hour.

Before the castings are placed in the acid solution care should be used to see that all the sand from the sand blasting operations is cleaned off. A large waste of acid is incurred if this excess sand held in the pockets and corners of the castings is not removed before they are placed in the tank. A good ordinary cypress pickling tank can be used for this type of acid solution. Special precaution must be observed in handling hydrofluoric acid. It is much more corrosive to the flesh than the common acids used in pickling. The castings should be handled with rubber gloves if the pickling is done by hand.

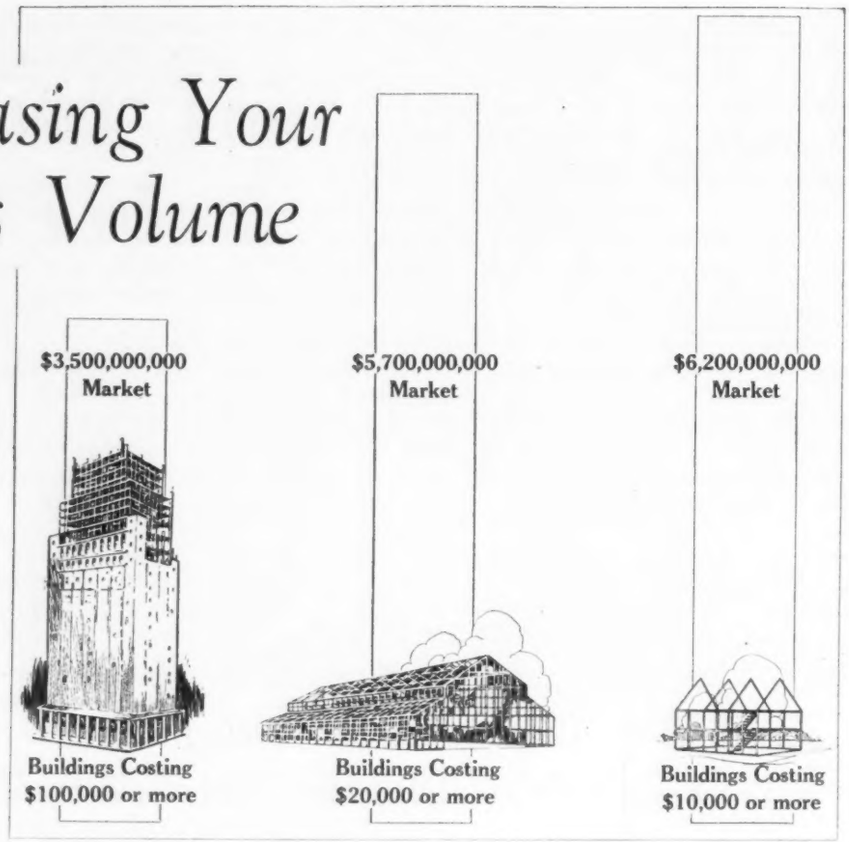
Once the castings are pickled clean, which may take any where from 45 to 60 minutes, they are removed from the hot pickle and placed in a water storage tank to keep them from rusting until ready for use, or they are dipped in a neutralizing bath to counteract the corrosive action due to the acid of the pickle. If they are to be galvanized they can be taken from the water storage tank and put into a hot muriatic solution for a minute or so, which serves as a dryer before going into the zinc bath. This method of pickling castings has been successfully used and will produce a clean surface for galvanizing, tinning or enameling.

Light Pressed Steel Frame Supports More Than Two Tons



THE weight of the washing machine steel frame and copper tub in the above illustration is just 38 pounds, while it is supporting a total weight of 4262 pounds. This unusual demonstration of the strength of pressed steel was made recently by the Automatic Electric Washer Co., Inc., Newton, Ia. The machine formerly was criticized for its lightness. To determine the strength of the 16-gage steel frame and legs which hold and support the copper tub a breakdown test was conducted which showed that it required 3 tons of deadweight to crush the machine. The illustration shows a sedan containing five passengers. The sedan weighs 3350 pounds, the passengers 635 pounds, and the platform supporting the car 277 pounds, or a combined weight of 4262 pounds.

Increasing Your Sales Volume



How Broader Markets Stabilize Business

By Truman S. Morgan

CONSTRUCTION volume in the United States averaged about $3,250,000,000 in the years 1919, 1920 and 1921. By that time the business community had finished the job of deflating the post-war boom and was ready to start on a program of increased construction to catch up with the accumulated demand. Construction volume had big yearly increases, each year from 1922 through 1925. In 1925 there was over $6,600,000,000 worth of new construction. Volume and productive capacity in the industry had doubled. More than that, the building shortage had been amply taken care of, so far as absolute shelter requirements were concerned.

Despite this, construction volume has not fallen below the 1925 figures. The total in 1926 was $6,900,000,000 and this year's total will be around $6,700,000,000.

The three-year period just coming to a close has been one of remarkable stability in construction. This year's construction program probably has done more than any other one thing to hold general business activity in the United States on a comparatively even keel.

In the fall of 1921, the President's conference on unemployment met in Washington, on the invitation of Secretary Hoover. After some months of study and investigation, the committee's findings and recommendations were made public. The principal recommendation for stabilizing business was to the effect that large programs of public construction should be held up while private building was going on at a high rate of activity, and started at such times when private work was falling off. An important secondary recommendation was that all businesses of highly seasonal character, particularly construction, should make every possible effort to spread their production programs as evenly as possible through the year.

Both of these recommendations have been carried out in large measure and have to a considerable extent succeeded in their purpose of stabilizing construction activity and general business. Campaigns to encourage winter building have resulted in keeping the industry fairly steadily employed through the year. Whether or not there has been a definite, concerted program of contract-letting on public work in the past two years, the fact is there has been a large increase in this class of construction, and this increase has offset declines in residential building volume, and has stabilized construction activity to a highly satisfactory degree. The comfortable credit condition this country has been enjoying has been an indispensable aid in the achievement of this result.

For a time at least, business men have found ways of smoothing out the peaks and valleys of construction and of business in the aggregate. When it comes to specific industries and individual firms, the story is not uniformally the same. Some industries and some firms have made great progress in stabilizing their business activities, others have scarcely started on such a program. It is possible for individual business to fluctuate considerably at a time when the industry

Abstract of address at fifth annual convention, American Institute of Steel Construction, Inc., Pinehurst, N. C., Oct. 27. The author is president, F. W. Dodge, Corp.

as a whole is moderately stable. Aggressive concerns will increase their business volume, leaving restricted opportunities to competing firms or industries.

If it is desirable for a large aggregation of units like the construction industry to smooth out its peaks and valleys and achieve a fairly uniform production program, it is probably much more desirable for the smaller industrial group or firm to do likewise. One of the ways in which this stabilization can be effected by a single firm, or group of firms in the same line, can be illustrated by the recent experience of our own organization.

Our daily building report service is sold according to territorial units, varying considerably in size and in proportionate cost to subscribers. Our subscribers range all the way from national organizations who take the service for the entire territory we cover to sub-contractors who pay us for service covering local territory.

Going After Nickels and Dimes

We have decided that there is a market right at our doors that has not been fully worked. We are concentrating our effort on getting a considerably larger number of small service contracts than we ever had before. We want the business that comes in larger units and we are going after that just as strong as we ever did. But we believe that we cannot only increase our sales volume by going after this small-unit business, but that in the long run a large volume of small-unit business, most of which is renewable year after year, do more to stabilize our income and profits than an equal dollar-volume of large-unit business ever could. Incidentally, in every hundred small buyers there are a few potential buyers of large service in the future.

The sales volume of the Woolworth stores is said to increase in years of business depression. At such times many people who do not ordinarily buy much at the 5 and 10 begin economizing and turn to Woolworth for many articles of merchandise that they usually purchase at the higher price stores. Incidentally, Woolworth probably can buy on extremely favorable terms at such a time, and that in addition to increased sales volume puts its business in an enviable position of stability.

One of the largest New York banks used to require its depositors to maintain $10,000 as a minimum balance to their credit at all times. You couldn't do business with that bank on any other basis. Several years ago that bank opened a branch uptown, with a "compound interest" department, in which a savings account could be started with $1.

Every business man today is wondering whether he can reach a bigger market, by going after the nickels and dimes and quarters. Can the structural steel business do this?

Let us assume that structural steel has been selling to building and engineering jobs that amount to $100,000 or more each, and to no smaller jobs. In a $7,000,000,000 construction year these big jobs would amount to nearly half the total construction expenditures, or nearly $3,500,000,000.

Can You Apply This To Your Business?

WHEN an organization or an industry finds it practical to broaden the base of its sales structure by offering different sales unit to fit a wider range of pocketbooks, it usually achieves a number of things.

First, it increases its volume of sales.

Second, it stabilizes its business volume.

Third, it builds up a clientele of small buyers who include a certain number of potential large buyers.

Fourth, it educates its customers to the idea that the product is adaptable to many uses.

Fifth, it puts the organization or industry itself through the valuable experience of adapting itself to new conditions, making itself flexible, getting itself into that frame of mind where it thinks in terms of expanding opportunities instead of thinking in terms of limitations, getting into a position of readiness to meet the rapid changes that have become a commonplace of modern business in America.

That is a very big market, and structural steel probably is usable in a fair proportion of these jobs. It may be that you can accomplish your purpose of increasing the sales of structural steel by confining your efforts to that market.

But if you can sell to projects that involve expenditures as low as $20,000 each, you will be selling in a $5,700,000,000 market instead of a $3,500,000,000 market. If you can reduce your minimum sales unit to one that will go into a $10,000 job, you will be selling in a $6,200,000,000 market.

It seems to me that it may be entirely feasible for the fabricators of structural steel to increase and stabilize their business volume by going after larger numbers of orders in the smaller unit classes of construction work.

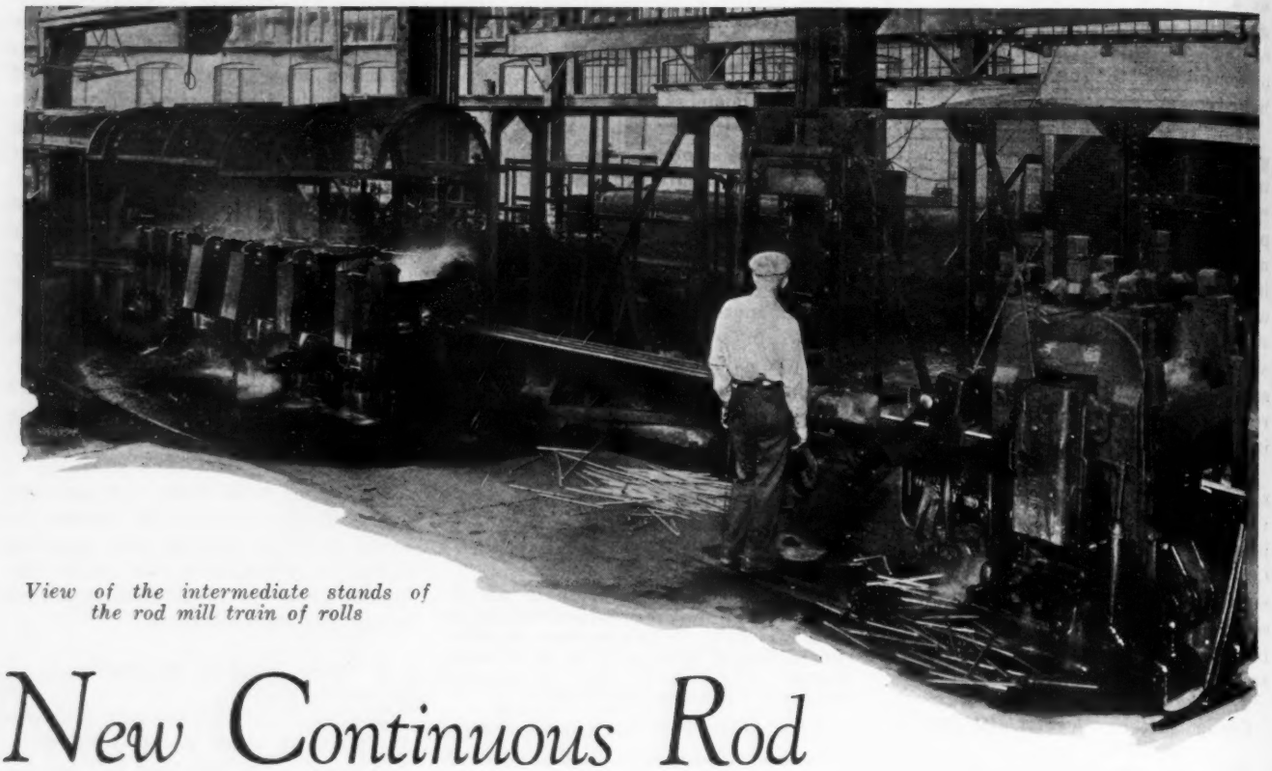
The steel frame for a $10,000 house is estimated to cost $900, which does not seem excessive, when you consider the various advantages that steel construction may offer. Price need not be the only basis on which you can enter the field of low-cost building projects. The people who pay for buildings will continue to want their money's worth in the buildings and the materials they buy, but they are not going to be guided solely by cheapness. The market has been fairly glutted with cheap buildings. While dwelling house construction has been on a decline recently, the decline has been entirely in buildings costing less than $10,000. This year has seen contract expenditures for houses over $10,000 each reaching a little bigger total than any previous year. There is not much market today for cheap buildings that offer the minimum of shelter requirements. The buying public in America is requiring a sense of discrimination.

More Insistent on Quality

The people of this country are richer than any other people ever were. The chances are that they will become even more prosperous than they are today. As they grow richer they will invest increasing amounts in building and engineering works of every kind. They will require better highways, bridges and viaducts. They will require better houses, better schools, better churches, better theaters, improvements in every class of structure that makes living more convenient, more pleasant, and more complete. In all these things they are likely to become more and more insistent on quality elements in design and materials.

In bridges and viaducts and similar structures, steel lends itself as well as any other material to beauty of design, as regards line, mass and proportion. In most cases, however, steel is just a framework that nobody sees. However, it would seem possible to bring to the attention of building designers the merits of steel with regard to strength, fireproof qualities, rapidity of construction with standard units, and such other considerations that make the use of structural steel advantageous.

It may be possible also to work out schemes that will show to building designers that steel frame construction has advantages in the development of plans for beautiful buildings. Architecture is much more than exterior decoration. A good building design involves perfect co-ordination of all the structural and decorative elements that enter into the organized whole.



View of the intermediate stands of the rod mill train of rolls

New Continuous Rod Mill Employs Muffle Conveyor

IN 1834 Ichabod Washburn started a wire factory at Worcester, Mass., and thus became responsible for the present position of this city as one of the oldest wiremaking centers in the country. That production methods have kept up with the times in this old wire center is shown by the fact that the American Steel & Wire Co. on the site of the old Washburn wire factory has recently put into operation one of the world's speediest continuous rod mills. These mills take 2 x 2-inch billets at one end of a continuous train of rolls, and at the other end deliver a No. 7 rod, 0.177-inch diameter, at the rate of 4200 feet a minute. In the sequence from billets to rods, 20 reductions are required.

Although Ichabod Washburn was a man of considerable vision, he undoubtedly did not have even a remote conception of the present development of the industry which he started. With him in the early days were associated Charles F. Washburn and Henry Washburn. In about 1868, Philip Moen joined the Washburn forces and the name of the company then became the Washburn & Moen Co. This company enjoyed exceptional success during the latter part of the nineteenth century. It held all the important patents on barbed wire and produced a bigger variety of wire than any other mill in the country. Thus, when the American Steel & Wire Co. was formed in 1899, one of its important acquisitions was the Washburn & Moen Co., which in addition to the Worcester plant, had a plant north of Chicago at Waukegan, Ill.

Philip Moen was president of the Worcester company. One of the men connected with the early wire industry of Worcester and an engineer in the Washburn & Moen organization was Charles H. Morgan who, working in conjunction with F. H. Daniels, chief engineer of the American Steel & Wire Co., invented the continuous mill principle in the steel industry.

Ever since the acquisition of the Washburn & Moen interests by the American Steel & Wire Co., nearly all billet and rod processes at the Worcester plant have been along the continuous line. The new mills are of this type and replace continuous rod mills of an old type. They were built by the Morgan Construction Co., Worcester, Mass.

The new rod installation, which recently was put in operation, is part of an extensive plan of rearrangement and modernization at the south works of the American Steel & Wire Co. New billet mill has been placed in line with the blooming mill. The billet mill takes 5 x 5-inch billets and rolls them continuously to 2 x 2-inch billets required for the rod mills. Heretofore, it was necessary to reduce ingots to 4 x 4-inch billets on the blooming mill, which is a more expensive mill to operate, and, hence, it is an economy to stop the process at the 5 x 5-inch size. The new billet mill consists of six stands of rolls, all driven through a system of interlocked gears by a 2500-horsepower motor. The motor receives its current from a new electric substation installed as part of the modernizing plan. Incidentally, this new power arrangement replaces eight steam engines with a large saving in floor space. Some idea of the extent of the electrical work in connection with the new mills may be judged from the fact that 48,000 feet of 4-inch fiber duck was laid to accommodate the various power and control tables.

The general scheme of operation in producing rods at the Worcester plant at present is as follows: Ingots approximately 17 inches square in section and weighing 4400 pounds each are transferred from the open-hearth pouring bay to soaking pits

(ABOVE) BILLET MILL WHICH IS BUILT IN DIRECT LINE WITH THE ORIGINAL BLOOMING MILL
(RIGHT) BILLETS ARE COOLED ON PLATFORMS WHICH ARE PROVIDED WITH WEIGHING DEVICES
(BELOW) MUFFLE-TYPE CONVEYORS WHICH PREVENT SCALE FORMATION ON THE ROD SURFACE

located near the blooming mill. Here the temperature of the ingots is held at 2200 degrees Fahr. until the steel solidifies. Each ingot as required is lifted from the pit, transferred to the blooming mill, where the usual practice is followed in reducing it to a 5 x 5-inch section. Billets of this form are conveyed from the blooming mill to shears, where they are cut to length and then automatically enter the continuous billet mill.

The six stands of rolls in this mill are divided into two groups of three each, with sufficient space between to permit the introduction of copper billets which are to pass through the three last reducing operations, only. The billets leaving the billet mill, whether of steel or copper, are 2 inches square in section. A flying shear cuts the 2-inch billets into 30-foot lengths and these are conveyed to the cooling tables. It is necessary to cool these 30-foot billets in order to handle them without kinking in the succeeding operations. Two cooling tables, each 65 feet long, are provided and at the end of each is an automatic weighing device.

The billet storage house, 85 x 400 feet, is the largest building of the rod mill group at the south works. It is a modern, steel and concrete building, and when rearrangements have been completed, will have storage capacity for 5000 tons of billets. From this cooling and storage room the billets go to a reheating furnace designed to take 30-foot lengths. Its floor is inclined at about 20 degrees with the horizontal. The billets enter the furnace at the upper end and gradually become heated as they slide sidewise down the skids. At the lower end of the incline, the billets, which now are approximately 2000 degrees Fahr., are pushed one at a time endwise out of the furnace and into the first stand of rolls of the continuous rod mill. The rolls of this mill are turned, so that two billets are rolled at the same time. These parallel billets are separated as the reduction reaches the form of a small rod, and from that point on, the mill includes two trains of single stand rolls. After 20 reductions, the rod passes through a curved guide pipe and enters the top of a reeling machine. From this point on the procedure is slightly different than in most other plants.

The coils of rods in bundles of about 400 pounds each are fed on to an inclined conveyor which is completely surrounded with cooling castings.

Thus the coils, as they are formed and while still hot, enter a muffle chamber which is practically devoid of oxygen. The purpose of this, of course, is to reduce oxidation and thus prevent the formation of scale. After the coils have cooled partially, the greatest susceptibility to scale forming has passed and the coils are allowed to come into the open for the final part of the cooling process. This in done by the familiar method of hanging each coil on a hook of a long endless conveyor chain. The coils thus are conveyed to a convenient point for transfer to cars or other shipping conveyance.

The cooling feature in connection with the inclined conveyors which takes the hot coils as they come from the rod mill consists of a series of castings each about 6 x 8 feet and each with several compartments and corrugated bottoms. These are designed so that water admitted at the upper level trickles down from section to section and passes out at the lower level. By regulating the valves controlling this water, the temperature in the cooling tunnel may be regulated. This feature, of course, requires a large amount of water. The company pumps this out of the Blackstone river. Altogether, at the south works about 1,000,000 gallons of water an hour is required for cooling and other purposes.

The new rod mill is designed for a capacity of 20 tons an hour, or approximately 150,000 tons a year. Both the new rod and the billet mill have been installed without interrupting production at the plant. When it is considered that the new mills occupy to a large extent the exact location of the old mills, the significance of this accomplishment becomes apparent.

The new rod mill is remote controlled in every respect from one central pulpit. Between two batteries of rolls toward the end of the reducing sequence of the rod mill space has been provided for a steel table to take care of any slack in the rapidly traveling rod. The operator, whose position is directly above this slack take-up table is able to hold just the desired amount of slack in the traveling rod by altering the speed of the rolls either before or after the point of slackness. If too much slack occurs, he either can reduce the speed of the rolls ahead of the slack point or else increase the speed of the rolls beyond the slack, and by opposite roll speed changes he can increase the slack if the rod is running too taut.

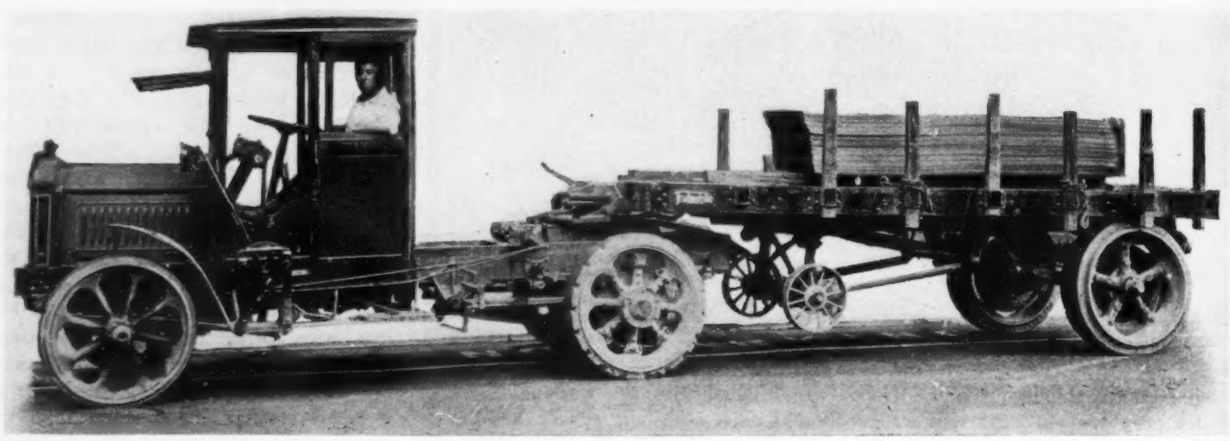
The plant is designed to keep all processes as free from dust and dirt as possible. The air used for cooling the motor and all oil used for lubricating throughout the new installation is filtered. The oil system is of the automatic gravity type and the entire supply is filtered about every 35 minutes. The flow of oil through the filter is approximately at the rate of eight gallons per minute. The new mills embody innumerable details which are the result of experience in actual operation of mills of a similar design. The motor is connected to the drive shaft through a breaking spindle designed with adequate strength to carry the normal load but weak enough to break before any dangerous strain would come on the motor. The billet mill is driven through large cut steel gears giving a 5 to 1 reduction. All gears in both mills are heat treated. The billet mill, although now used in rolling 2-inch billets, is designed to roll sections which have one dimension 2 inches and the other dimension either 2, 3, 4, 5, 6 or 7 inches. The plant throughout is ventilated with a unique system of blowers and exhaust fans and air ducts.

Remodel Norton Stack

Norton Iron Works, Ashland, Ky., has let a contract to Arthur G. McKee & Co., Cleveland, engineers and contractors, for redesigning and rebuilding its blast furnace. The stack will be converted from hand-filled to skip-filled and will be provided with a new top structure, revolving distributor and coke-handling equipment.

Charleroi Steel & Foundries Co., Charleroi, Pa., has been placed in the hands of a receiver.

Trucking Sheets Eliminates Eight Operations



TO KEEP equipment operating continually and to eliminate any lost time in loading and unloading, a sheet producer in Southern Ohio is employing motor truck-tractors and trailers for the transportation of sheets between plants. The trailers are of 6 tons capacity. Complete control of the coupling and uncoupling operation is had from the tractor cab.

Eight operations, including the ordering of freight cars, hauling sheets with hand trucks, loading into railroad cars and bracing were eliminated by spotting the trailers beneath the crane runway and loading the stock directly onto the trailer.

A complete time study of the substitution of trailer equipment in place of shunting freight cars from one plant to another disclosed a saving of $6000 annually.

Approach to revolving car dumper, showing empty car return at left; above, three-quarter view showing car rider's platform at rear of dumper

Car Unloader Doubles Capacity

Installation Operated by Railroad at Baltimore Transfers Coal from One Carrier to Another Without Degradation—Feeder Capable of Handling 2200 Tons an Hour

NEW coal handling facilities were placed in operation this month at the Port Covington coal pier, Baltimore, of the Western Maryland Railway. This equipment was designed and constructed by the Wellman-Seaver-Morgan Co., Cleveland to be used in conjunction with other coal handling machinery on the same pier, consisting of a lifting car dumper and a conveyor loading plant installed several years ago.

The new equipment includes a revolving dumper into which cars are introduced by a mule haulage; a receiving hopper for the coal dumped by the car dumper; an apron feeder for removing coal from the hopper and loading a 60-inch conveyor belt 500 feet long which in turn delivers the coal to the boat over a conveyor carried on a loading boom. This boom conveyor is part of the original equipment.

Breakage Is Reduced

This installation has more than doubled the loading capacity of the pier and represents the first use of the revolving car dumper for loading boats. The adaption of this machine to boat loading operations is accomplished in such a manner as to reduce breakage far below the ordinary minimum in dumping the coal from cars and the coal thus discharged into the hopper is removed in a slow moving stream, without drop and consequently without degradation.

At Port Covington the road cars from the gravity yard are pushed up a 15 per cent incline into the car dumper. The mule is operated by a haulage and tail rope in the usual manner, both ropes being wound on a drum forming part of the machine.

The revolving dumper consists of a car receiving cradle provided with rings at each end. These rings are surrounded by heavy rails which are supported at each end by two pairs of equalized rollers. Near each end of the cradle it is partially surrounded by gear segments which mesh with pinions driven by spur gears and a worm reduction connected by a flex-

ible coupling to the 100 horsepower driving motor.

This is the only motor used to operate the car dumper and is provided with magnetic control and limit switches for slow down and cut out in either direction. The electrical equipment used in this installation was furnished by the General Electric Co. The gearing is proportioned for a capacity of 35 to 40 cars an hour.

The car rails in the cradle are mounted on a movable platen which is held in alignment with the approach and runoff rails when the cradle is seated. As the cradle starts to rotate this platen moves sidewise until the side of the car rests against the car blocking. As the cradle continues to rotate four clamps automatically engage the car and hold it in an inverted position. These clamps descend by gravity to the top of the car, being automatically adjustable to varying heights of cars. After the rotation of the cradle to a predetermined angle the clamps are locked securely in position by counterweighted arms.

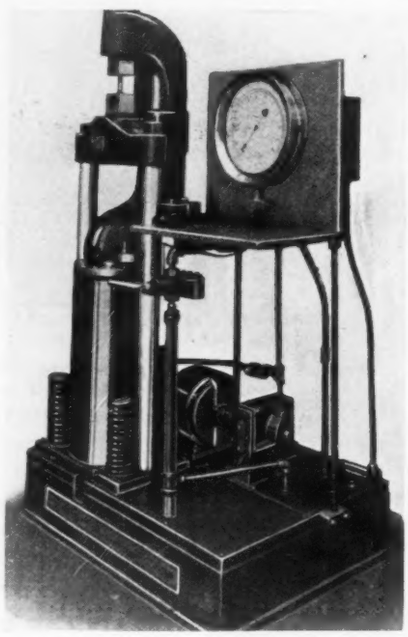
The dumper is located on an elevated platform which also forms a support for a 75-ton hopper into which the coal is discharged from the cars. The bottom of the hopper is provided with two outlets which are served by a single 54-inch steel apron feeder traveling at 200 feet a minute. This feeder draws the coal from the hopper without drop in a smooth steady stream which is carried longitudinally and discharged into a chute inclined to give the coal proper velocity to feed the 60-inch conveyor belt.

The feeder is operated by an 80 horsepower motor to which it is geared by change gears so that it can be operated at 200 or at 100 feet a minute. The capacity at high speed is approximately 2200 tons per hour. The 60-inch conveyor receiving its load from the chute at the head end of the feeder, is carried by roller bearing troughing idlers up an incline of 14 degrees and a short horizontal run, to the loading tower about 500 feet distant where it discharges direct to a 54-inch apron conveyor carried by a boom or the loading tower, the coal being discharged through a telescope chute suspended from the outer end of the boom and extending into the boat. The 60-inch conveyor is driven by tandem pulleys directly geared to a 250 horse power motor. This mechanism also is provided with change speed gears so that the speed may be varied from 650 feet a minute maximum to 350 feet minimum. A gravity take-up is provided adjacent to the tandem drive pulleys.

Laboratory Installs New Testing Machine

Included in new testing equipment installed recently by the Pittsburgh Testing Laboratory, Pittsburgh, is a 60,000-pound machine which features simplicity, compactness of the self-contained unit, ease of operation and rapidity with which tests can be dispatched. This machine was built by the Southwark Foundry & Machine Co., Philadelphia, and was designed by A. H. Emery of the Emery-Tatnall Co., Philadelphia.

The machine is self-adjusting and has quick-change grips arranged for



SINGLE-COLUMN TYPE TESTING MACHINE IN WHICH SPECIMEN STANDS OUT IN THE OPEN IN FRONT OF OPERATOR

the screw shank or shoulder and standard specimens of 2-inch gage length. For compression and transverse tests, it has a 6-inch spherical seated table platen arranged for specimens up to 4 inches high. The indicating system is of the hydraulic support automatic type with a 12-inch hydraulic support located at the base of the cylinder and a 12-inch indicator with a load range from 0 to 60,000 pounds. In its automatic autographic form, the testing process becomes one of general routine, requiring a minimum of operating skill, consequently a strip chart recorder can be supplied.

A multiple rotating cylinder pump direct-driven through flexible coupling by a 1-horsepower motor supplies the power for operation. All speeds from 0 to 6 inches per minute with extremely sensitive control are obtained by a handwheel. Safety features include overload fluid relief, overtravel limit stop and overload and low voltage protection on the electrical equipment. The machine weights 2400 pounds, occupies a floor space 30 x 39 inches, stands 5 feet 9 inches high and requires no foundation.

Staging the Come-back of an Obsolete Shop

(*Continued from Page* 1159)

then pass on to the other assembly stations and finally to the inspectors. All inspectors report to a head inspector, but entirely distinct from this organization is a central inspection department through which all products must pass. This central department is directly responsible to the plant manager. In the central inspection room each completed product is operated under normal operating conditions.

As soon as Mr. Hadley saw that order and precision was replacing chaos in the production side of the business, he turned his attention to sales and distribution. The original Hudson product was heavy and cumbersome, although unusually good mechanically. Sensing the trend toward light weight and portable articles in American homes, he had designed a machine weighing less than half of the lightest former models and capable of doing the same work. This lightness was made possible through the use of duraluminum castings and by changes in design.

The light-weight model was welcomed by the consuming public. As soon as its sale in encouraging volume was assured, Mr. Hadley turned to a study of the company's models. He quickly discarded many obsolete types and finally settled upon seven as standard. In eliminating numerous styles in sluggish demand, he greatly reduced the stock formerly required. Soon he was able to adjust factory activity to conform with sales and today the complete stock is being turned over about every 45 days.

Drawback Is Extended

A former treasury decision for payment of drawback on various aluminum articles manufactured by the United States Aluminum Co., Pittsburgh, with the use of aluminum in crude form, as amended and extended, has again been extended to cover cable of aluminum or aluminum and steel manufactured by the said company at its various factories with the use of imported pig aluminum or imported pig aluminum and steel wire.

Kaleidoscopic Competition—How Shall We Meet It?

By O. H. Cheney

IN THE new inter-industrial competition, industries are fighting not only for money but also for time and space. And the competition for money is not limited to buying power, it includes investment capital. But even wider and more vital than inter-industrial competition is international competition, because here we are right in the silent storms which govern the fate of nations, and sometimes, when there is war, they are not so silent. I need not tell the structural steel industry about foreign competition. It does not take a big volume of imported fabricated steel to upset prices. Buyers are ready to hear the figures of the importer and to use them with deadly effect when the domestic fabricator bids, and to use imaginary steel as well as real steel to whittle down prices. And so far the attempt of a patriotic superintendent of buildings like the one in Brooklyn, N. Y., to forbid the use of foreign beams, has not been effective. Nor has the anti-dumping tariff law yet been of much use to you gentlemen.

And there is not only international competition for markets in the steel industry, as in most others. There is also the competition for essential raw materials. In steel, the need of manganese, unless the research men can find a substitute, may well influence our international relations in the future, and it is difficult to estimate what a continuation of our high tariff on manganese will do to our domestic steel producers.

It may appear, in the not far future, that the American steel industry has been a little too confident and self-satisfied about international competition. It has been telling the world that it does not fear English and Continental competition in the world markets.

The pressure of international competition forces more international competition. European steel producers have been aided by cheap labor, government subsidies, special railroad rates and exchange conditions—and as a result English steel producers find it hard to fight continental competition. They therefore join together and agree to give rebates to customers who use only British steel. And when foreign producers are thus shut out of one market, will they not seek other markets? Canada, India, Australia and Japan are building up their own steel production and the world market for steel is narrowing in area, even if the potential volume may be increasing. Will not the competition for the few remaining markets become more intense? Our American steel leaders have been reassuring us that we have nothing to fear from the continental steel entente, that the cartels know that the American steel industry is not to be trifled with. But so far the cartels, even by stringent fine systems, have been unable to keep down production in some countries and a desperate man will dare anything.

I have indicated very sketchily the effects of international and inter-industrial competition on the steel industry. Now is your industry different or is it affected by the other types of the new competition, by inter-distributor and inter-commodity competition? And how? And what is to be done about it?

Who Pays the Piper?

THAT the intangible and multifarious phases of competition really react eventually to each individual was pointed out in the talk by Mr. Cheney, vice president of the American Exchange Irving Trust Co., New York, on "Profits and the New Competition," at the recent annual banquet of the American Institute of Steel Construction at Pinehurst, N. C. Each manufacturer, each product, each industry and each country are but a few of the individual phases of competition. Inter-industrial and international competition were sketched by Mr. Cheney as were inter-distributor and inter-commodity competition, the effects of each on the steel industry being shown.

Your mill competition is exactly the same as the competition a grocery wholesaler gets from his manufacturer or a textile jubber gets from his mill. I do not mean to say that just because many others in other industries are suffering from troubles like yours, therefore you ought to feel better. All I would like to point out is that you are facing a well-nigh universal trend and not just what you may consider the cussedness of a few steel mills.

Let us start at the beginning. After all, what right has the fabricator to his existence? What function has the fabricator in the system of structural steel distribution? It is his function to supply the individual job with exactly the right steel, in the right quantities and according to specifications when and where it is needed. He is ready to undertake any and every job in his line in his economic territory and to give every essential service to his customer. Can anybody else perform these functions? Yes, by becoming a fabricator.

But, the question is, can the hot steel producer become a fabricator? Well, would it be possible and fair for the fabricator to operate a steel mill? Why not, if he could? The question of possibility answers itself and the question of fairness doesn't enter into it. I realize that you will take issue, that you believe it is unfair for the mill to sell direct to the job and to cut you out, you, the mill's own customer. It is not unfair to do business by any more efficient way, the question is, is mill selling more efficient? That is the fallacy behind a lot of what are considered the latest developments in merchandising. "Direct from factory to you" sounds economical but it very often isn't. The point which is often overlooked is that the middleman performs definite functions which are necessary, somebody as to break up big production into small orders, and in the case of the steel fabricator, has to manufacture, as well. The mill can perform these functions—if it performs all of them. If a mill does everything a fabricator does, then it is a fabricator and there is no problem.

And if the mill really undertook to bid on any and every job instead of just picking off the easy ones, and of giving service instead of working through desk jobbers, then mill competition would not be what it is, it would be normal competition, like that between any two of you gentlemen.

The effect that mill competition has on the fabricator is only one side of the problem, more important is the effect on the whole steel industry and therefore on the mill. If the mill succeeds in making it impossible for the fabricator to make a decent profit on his year's work, then the mill may find itself without fabricators, and then it will have to undertake all the functions of the fabricator. Until the mills are ready to do this, it is, to put it mildly, short-sighted to sell direct, just as any inter-distributor competition is uneconomic unless the distribution system of the industry is entirely reorganized.

Advances Three Solutions

"What can be done about mill competition? Perhaps even by asking that question I am rushing in where angels fear to tread. There are three possible answers but only one that amounts to anything.

Now the meat trade, for instance, has been facing the same problem, the retailers sometimes have occasion to complain of direct selling by wholesalers and packers to certain types of their customers, like hotels and restaurants. The meat packers realize that the life of their industry depends on the distribution system of retailers who do their work efficiently and who make a fair living. Therefore any complaint of direct selling is immediately considerd by the local city meat council and, if found justified, the practice is immediately stopped. These meat councils are joint bodies with members representing packers, wholesalers and retailers and they work continuously on problems within the industry and on common problems which the industry as a whole has to face.

Only the whole industry can be a tower of strength against the forces of inter-commodity competition. Practically every product in every field is facing inter-commodity competition of some kind. What are they doing about it? In the building field, for instance, the pine lumber producers, the oak flooring people, the hemlock men—each group has been conducting co-operative campaigns to promote its products against other products. But that was not enough, and only a few weeks ago I was at the meeting of all the lumber manufacturers' organizations at which the whole lumber industry agreed to get together on a $5,000,000 campaign.

Perhaps the best example of all is the cement industry. You know, the cement association was started because of troubles about cement bags. But the mind of the industry and the efforts of the association are no longer focussed on cement bags. The Portland Cement association is now one of the leading trade associations in the world, with strong advertising, merchandising, educational and research activities and with over three hundred engineers whose only job it is to promote the use of cement. And, by the way, isn't there some sort of competition, once in a while, between concrete and structural steel?

Your organization has gone far in the few years it has existed, further than many trade associations with longer histories. But you have still far to go. That is why it would be undesirable for you to draw two possible morals from what I have been saying about fighting inter-commodity competition and protecting your volume of business. The ideas which I do not wish to leave with you are that I think volume of business the cure for your troubles or that I think that merely having your association will solve your problems.

Volume is not the great need of the structural steel business or of the steel industry as a whole. American business in general has gone volume crazy. A growing number of businesses are losing money and the profits of those which are making money are decreasing. The steel industry is even below the average in its returns. The profits of industries which depend on iron and steel for their raw materials are making on an average twice as big a return as the iron and steel industry. The steel industry has put $1,650,000,000 into new plants and equipment since 1914, and yet the profit per ton of steel is practically the same as it was then.

Why is that? It isn't only volume or overproduction, although all cannot be well with an industry which dances in the streets when it is going at 75 per cent of capacity. Perhaps we shall come nearer the answer when we learn that prices of all building materials averaged together are 73 per cent above 1913 levels while structural steel is only 30 per cent higher, and structural steel, since its thorough deflation in 1920, has been relatively lower than any other building material. It is interesting to note that the composite price of finished steel as a whole is 47 per cent above 1913.

In a year when structural steel reached record production heights and when the air was filled with grand and glorious visions of a world of skyscrapers rising higher and higher, why have prices and profits been what they were? Why is it that the structural steel business has become the step-child of the steel industry?

Mirrors Forward Step

Your promotion of structural steel for small homes, thus going after new markets as well as protecting the old, is an almost sensational contrast to the traditional methods of the steel industry. Until now, anybody who wanted to give the steel industry new business had to hit it over the head to wake it up. Your realization of the need of research is promising, and so is your work for uniform building codes and more scientific specifications, and so is your educational work.

But I should like to warn you that many trade associations are little more than once-in-a-while golf clubs because their members took it for granted that if they had an association and paid dues, that that was all there was to it. An energetic director and a little advertising campaign are not all the essentials of a successful industry. A group of members is no more a trade association than a pile of beams on the sidewalk is a skyscraper. Do not think that because you see an advertisement for steel in a popular magazine that all you have to do is to sit and wait for people with fat jobs to come clamoring to your door. And your sales manuals are not worth the paper on which they are printed if your salesmen keep them unread while they go out and let the builder kid them out of your profits by playing off your friend here against you.

Others Face Problem

YOUR mill competition is exactly the same as the competition a grocery wholesaler gets from his manufacturer or a textile jobber gets from his mill. I do not mean to say that just because many others in other industries are suffering from troubles like yours, therefore you ought to feel better. All I would like to point out is that you are facing a well-nigh universal trend and not just what you may consider the action of a few steel mills."

Editorials

Something from Nothing Is Success ***Gray Iron Needs Spotlight of Facts***
Distribution Is a Persistent Riddle ***Alien Steel Plagues Coast Markets***
Inertia Is Fatal in Steel Industry

Making Good Under Handicaps

WHEN a plant manager makes an unusual record for efficiency in operating a new establishment, his achievement is enhanced by the shipshape appearance of the buildings, grounds and equipment. Frequently his contemporaries in old plants, who are equally efficient, are deserving of even more credit because their success is won over the handicap of ancient buildings, antique equipment and other inadequate appointments.

The thousands of executives in this country who are trying to make a good showing with obsolete facilities will find encouragement in the accomplishments of Mr. Hadley, whose experiences with an abandoned plant are related in the leading article in this issue. Many of the improvements he introduced in his old shop may be duplicated to advantage by other managers.

Helping Foundries Help Themselves

OF THE various branches of the metalworking industry none is more barren of dependable statistics than that embracing the gray iron foundries. Penton's *Foundry List* and the mailing lists of a number of dealers in foundry supplies and equipment provide rosters of manufacturers of gray iron castings, but aside from these tabulations there are no recorded facts regarding the industry.

This is extremely unfortunate, especially at this time when the founders are seeking light on vexing business problems, many of which would be clarified by a knowledge of production, capacity, demand, etc. Information of this character would help settle many questions of policy for the entire gray iron group and might conceivably form the foundation for constructive work by a business association of gray iron shops.

Fortunately the machinery for obtaining these useful data has been perfected and now is in operation. Questionnaires have been sent to all gray iron foundries of record by the bureau of foreign and domestic commerce of the department of commerce. The questions have been phrased so as to enable every establishment to answer them intelligently, regardless of whether their individual records are meager or complete. Moreover, the information regarding each foundry will be held strictly in confidence. It would be hard to conceive of any good reason why a foundryman should not furnish the information desired promptly, accurately and with an eagerness to help the general cause.

The department is offering a wonderful opportunity to the gray iron industry. The extent to which this is capitalized depends entirely on the individual foundry operators. If they fail to cooperate in sufficient numbers to make the return representative, the entire plan will fall through, but if they support the government bureau in a whole-hearted way, the results may have an important constructive influence on the future of gray iron. Now is the time for every foundryman to prove his interest in the welfare of his industry by promptly answering and returning the questionnaire.

Selling No Sinecure Anywhere

IMPORTS of iron and steel, considered in the aggregate, are infinitesmal compared with the large domestic production. In September imports of all products totaled only 58,464 tons, or 0.018 per cent of the domestic output of 3,232,108 tons of steel ingots. In the vast interior markets of the country foreign material is no factor.

But to the seller of iron and steel along the exposed seaboards imports are of grave importance and to the consumer they are bringing at least temporary advantage by way of lower prices. Both the east and west coasts at present afford evidence of this.

A reduction of 5 cents per 100 pounds on ocean rates on finished steel has been ordered by the intercoastal steamship conference because, as the conference explains, "Belgian and

German steel manufacturers shipping direct from their home ports to the Pacific coast can quote better prices than Pittsburgh steel producers shipping under the conference rate."

Warehouse prices at Philadelphia are chaotic, in part due to importations. Foreign bars can be had at 1.65c, duty paid, tidewater, or about 1.75c delivered to warehouses and placed in stock, compared with 2.07c, delivered, asked by Pittsburgh district producers. The result has been to lower the warehouse price on bars, in instances, to 2.34c. Foreign steel is also a major consideration along the Gulf coast.

While producers in the interior markets are without foreign competition they frequently face unintelligent sales effort which ultimates in correspondingly low prices. The problem of selling thus becomes relatively as difficult as on the seaboards and consumers buy for less.

Alright Abroad; Wrong at Home

THE chemical interests of France and Germany, following the lead of steel and potash, have reached a rapprochment which effects a division of markets and control of prices. Competition ceases and producers are assured a profit to themselves and a living wage for labor.

To these aims, assuming that the price to the consumer is fair, no one can dissent. The well-being of a modern nation depends largely upon the condition of its industry. Charles M. Schwab voiced much the same aspiration in his recent address before the American Iron and Steel institute when he declared that ill-advised competition must be curbed.

But it is difficult to comprehend the viewpoint of those newspapers and quasi-public organizations which, hailing rapprochments and cartels and trade agreements in Europe as a step toward peace, become outraged when similar action is proposed at home. Almost invariably this is the attitude of publications favoring greater American participation in European affairs. For competition to be restrained in Europe is laudable, but let a group of American producers talk prices or division of markets and there is a hurry-up call for the federal trade commission or the department of justice.

Constant Change in Steel

CONSTANT change and development is the rule of life and of the iron and steel industry. Neither can stand still. Changes in the latter are coming with increasing rapidity. It seems to the present generation of makers and users of ferrous metals that something new becomes standard with every turn of the clock.

Older men in the industry remember the struggle of iron rails against the encroachment of steel; of bessemer rails against open-hearth; of iron bars against steel bars. The present generation is seeing the contest of steel sheets against the continuous mill; of castings against the encroachment of steel stampings; of cast iron pipe against steel pipe; of riveting against welding; of steel tubing against brass.

Developments in alloy steels and heat treatment to make steels better able to bear their burdens seem to promise much. As a whole the industry is advancing and giving better service. This is proof of life and vitality. That some must suffer loss by the changes in method is inevitable. To adopt the proved new thing and participate in its benefits is the economical thing for the steelmaker to do.

What Our Readers Are Thinking

German Workers and Savings Gain

WITHIN the territorial limits which embrace the Germany of today, there was in 1907 a population of 57,000,000; at present the population is 63,000,000. The industrial census of 1907 placed the number of wage earners within this territory at 13,276,000, while that of 1925 showed a total of 18,389,000 persons engaged in gainful occupation. The latter figure may be accepted as being roughly the same for 1927.

These figures show that, within a span of 20 years, the population of Germany increased by 10.5 per cent while the number of workers advanced by 39 per cent.

Provisions of the Versailles treaty reduced the personnel of the army and navy to such an extent as to render nearly 400,000 men available for productive employment. Second, a considerable number of people whose livelihood was derived solely from the proceeds of investments, found their holdings wiped out by the currency collapse and, as a result, had to accept wage-earning positions. The third factor is the growing proportion of female workers as evidenced by the fact that, between 1907 and 1925, the membership of this category increased by 45.5 per cent, while the number of male workers advanced by 35.2 per cent.

The industrial group, naturally, includes the largest number of German workers, and, since 1907, has shown an absolute gain of 2,640,000 persons. However, the proportion of industrial workers to the total number of workers declined from 74.1 per cent in 1907 to 67.8 per cent in 1925.

Cooperative societies report a constantly growing volume of sales, and the remarkable rise in the total of savings deposits from 1,400,000,000 marks in September, 1925, to 4,100,000,000 marks in July, 1927, gives further evidence to the comparative well-being of the German worker.—ALMON P. ROCKWELL, *division of regional information, department of commerce, in Commerce Reports.*

IRON TRADE REVIEW

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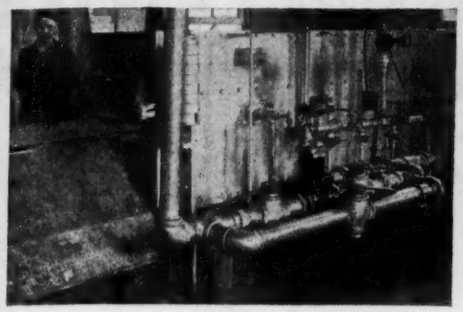
E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulatiou Manager.*



Heat Treating Parts for Automobiles. Page 1160.

WHAT shall be done with the old-fashioned plant—the kind that needs replacing with a modern structure, but that has proved such a handicap to the business that its owners cannot afford to take such a step? Can it be brought back? Can it be made profitable? This subject is treated comprehensively in the article "Staging the Come-back of an Old-fashioned Plant," page 1157. The article is a true account of the actual experience of an eastern company that "made over" its plant, rescued the business from receivership and made it profitable. The facts will appeal to shop managers.

The Readers' Page

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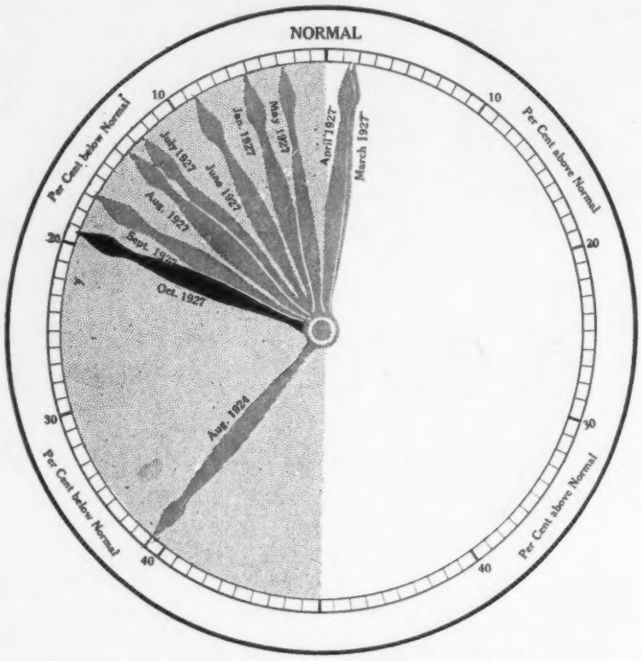
The Business Trend

Blast Furnace

The Dial represents the Blast Furnace Index of Business which is based upon a 40-year record of furnace activity. It is a barometer of general trade.



Business Dial

When 60 per cent of all the country's furnaces are in blast business conditions are normal. The Index is now lower than the normal point on the dial.

Improvement Not Yet Apparent

By JOHN W. HILL, Financial Editor

BLAST furnace operations suffered another decline in October and at the close of the month the number of active furnaces was 175. This compared with 181 one month before and 223 at the peak of the year in March. Compared with normal operations the activity of furnaces at the close of October showed a reduction of nearly 20 per cent.

THIS loss in blast furnace activity, together with further reductions in daily average output of pig iron and continued price weakness in the iron and steel market, combine to show that October failed to bring the expected improvement. In the past, it has usually been the case that the upturn from the summer months has appeared by October in any particular year or it does not come before the close of that year.

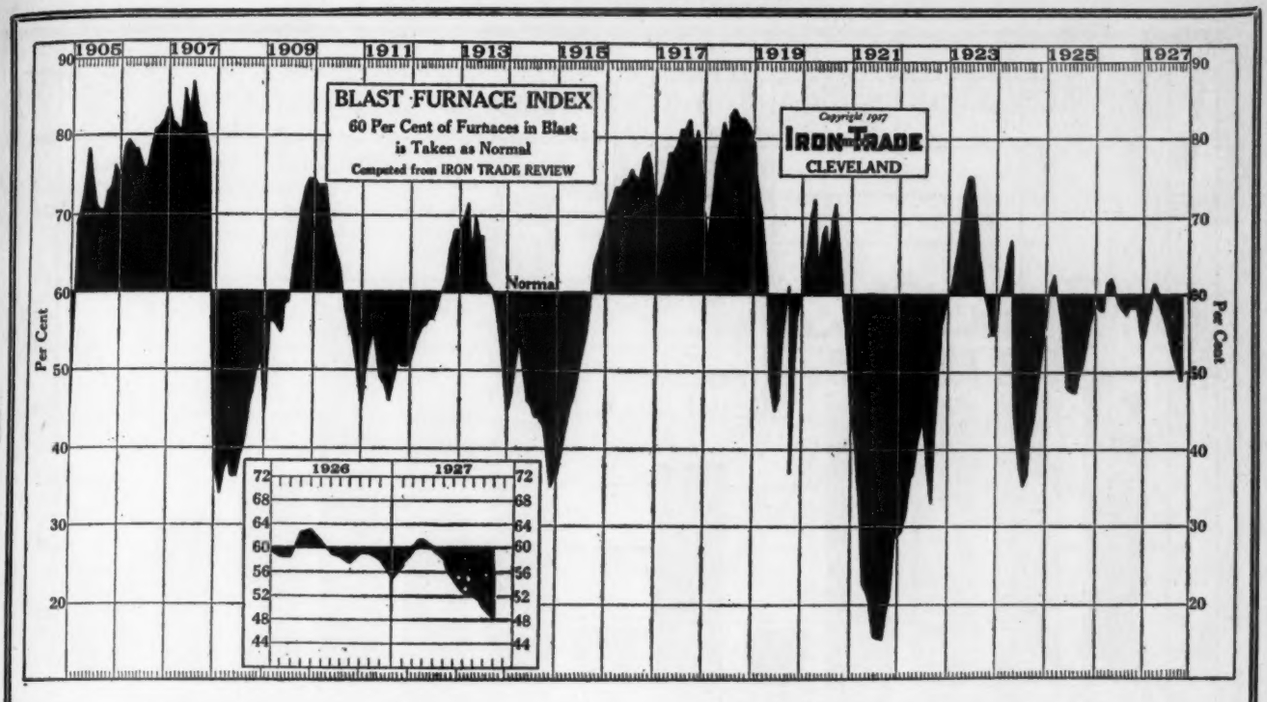
THIS year may prove no exception to that rule, and important impetus is unlikely until strong recovery appears in the motor car industry. This may not develop in full measure before early in 1928. The steel trade has suffered a severe blow this year from the dropping off in motor car output. But from all indications there now exists an underproduction of automobiles which should be translated into greater activity over the coming months.

THE automobile trade has not been the only market outlet which has proven disappointing to the iron and steel trade this year. Railroad equipment buying has been another. The feebleness of that support under the steel market structure is seen by the fact that less than 1000 cars have been purchased in the last two months. For the year there is every indication now that railroad buying of equipment will fall below that of 1926.

ALTHOUGH the construction industry has been stimulating to steel trade and to general business during the current year, this branch of activity is now going into a normal seasonal decline. The most unfavorable factor in the iron and steel trade continues to be the low price level. Pig iron prices have crashed through the bottom of the low point reached in the 1921 depression and are the lowest since 1915.

AVERAGE iron and steel prices are only 34 per cent over the 1913 level. As a result of low prices and reduced volume steel company earnings, already notoriously low relative to capitalization, suffered sharp recession in the third quarter. The slump of earnings came as no surprise when the low quotations and reduced volumes are taken into consideration.

The Business Trend

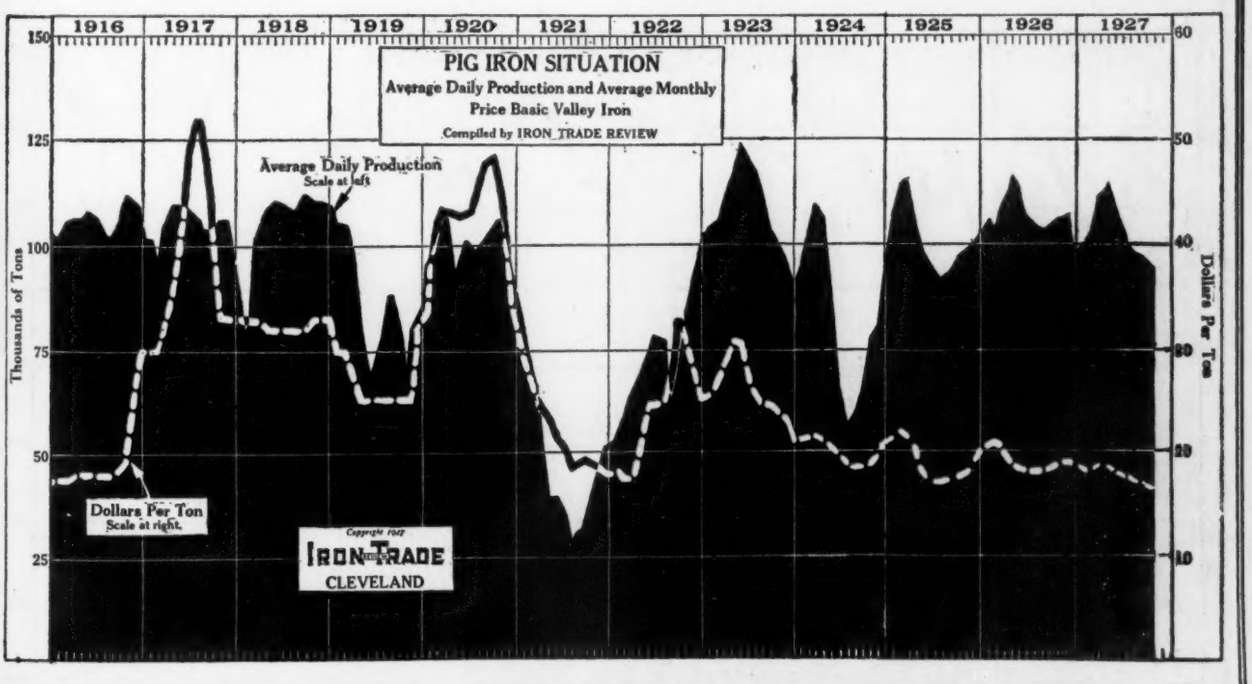

BLAST FURNACE INDEX
60 Per Cent of Furnaces in Blast is Taken as Normal
Computed from IRON TRADE REVIEW
Copyright 1927
IRON TRADE
CLEVELAND
Normal
Per Cent
1905 1907 1909 1911 1913 1915 1917 1919 1921 1923 1925 1927
1926 1927

Blast Furnace Index

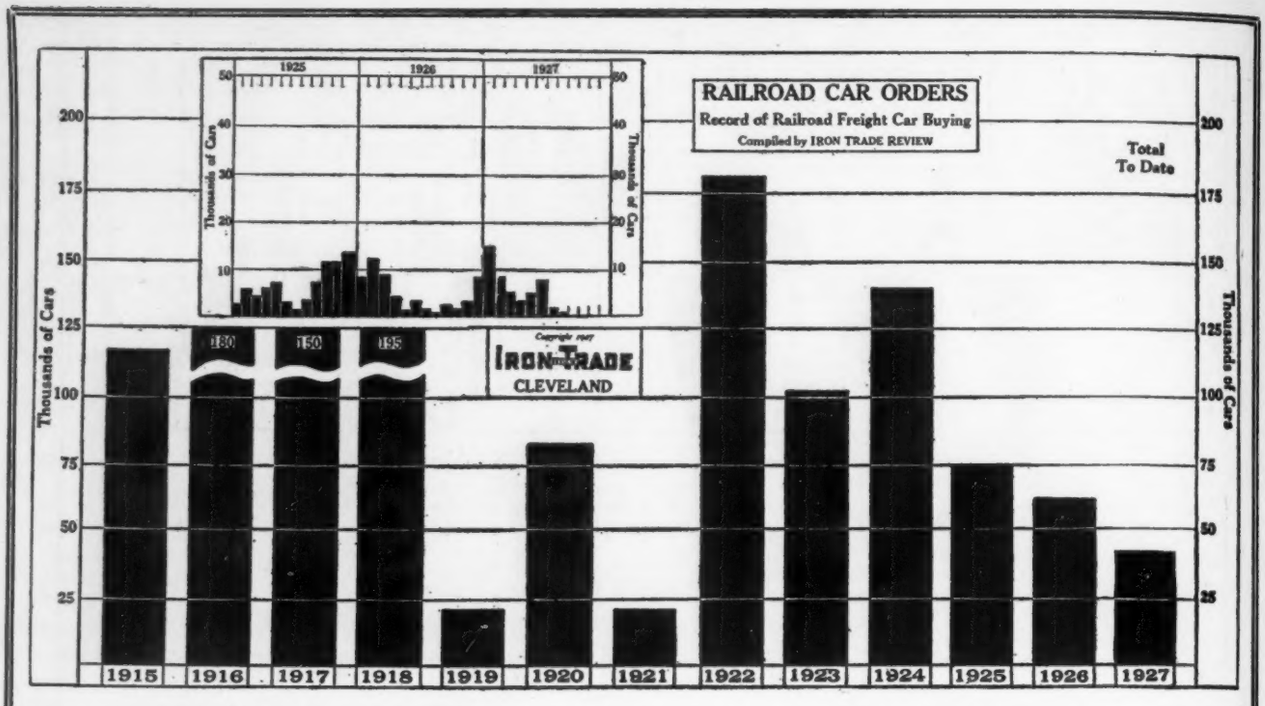
OCTOBER brought a further decrease in the number of blast furnaces in operation. At the close of the month 175 furnaces were in blast compared with 181 in September and a high point of 221 in April. There are now 361 furnaces available for service in the country and of this number 48.4 per cent were in blast in October compared with 50 per cent in September and 60.7 per cent in April of this year. The recession in blast furnace operations reflects the marked decline in industry.

Pig Iron Production

FOR the sixth consecutive month production of pig iron declined in October. The daily average rate of output for the month was 90,652 tons compared with 92,750 tons in September and 107,555 tons in October, 1926. The daily average rate for October was the lowest for any month since September, 1925. It was the lowest for any October since that month in 1924. Pig iron prices have declined and basic iron at $17 is the lowest level touched for any month since 1915.


PIG IRON SITUATION
Average Daily Production and Average Monthly Price Basic Valley Iron
Compiled by IRON TRADE REVIEW
Average Daily Production
Scale at left
Dollars Per Ton
Scale at right
Thousands of Tons
Dollars Per Ton
Copyright 1927
IRON TRADE
CLEVELAND
1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927

The Business Trend

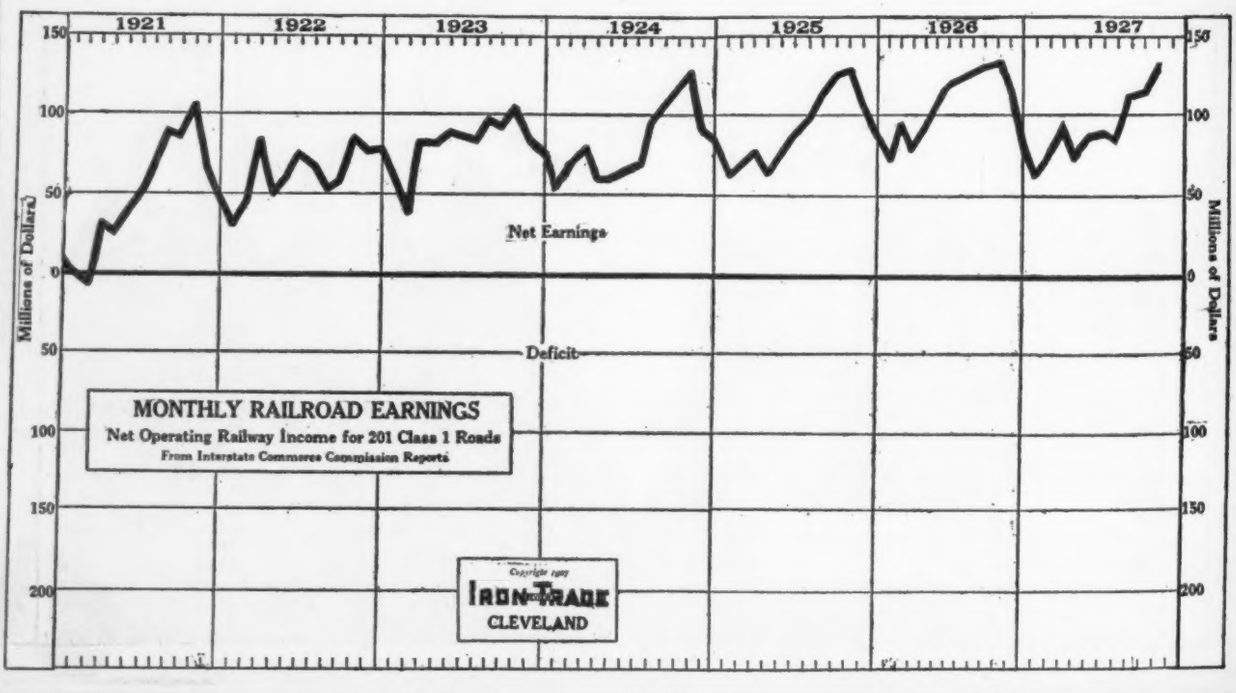


Freight Car Orders

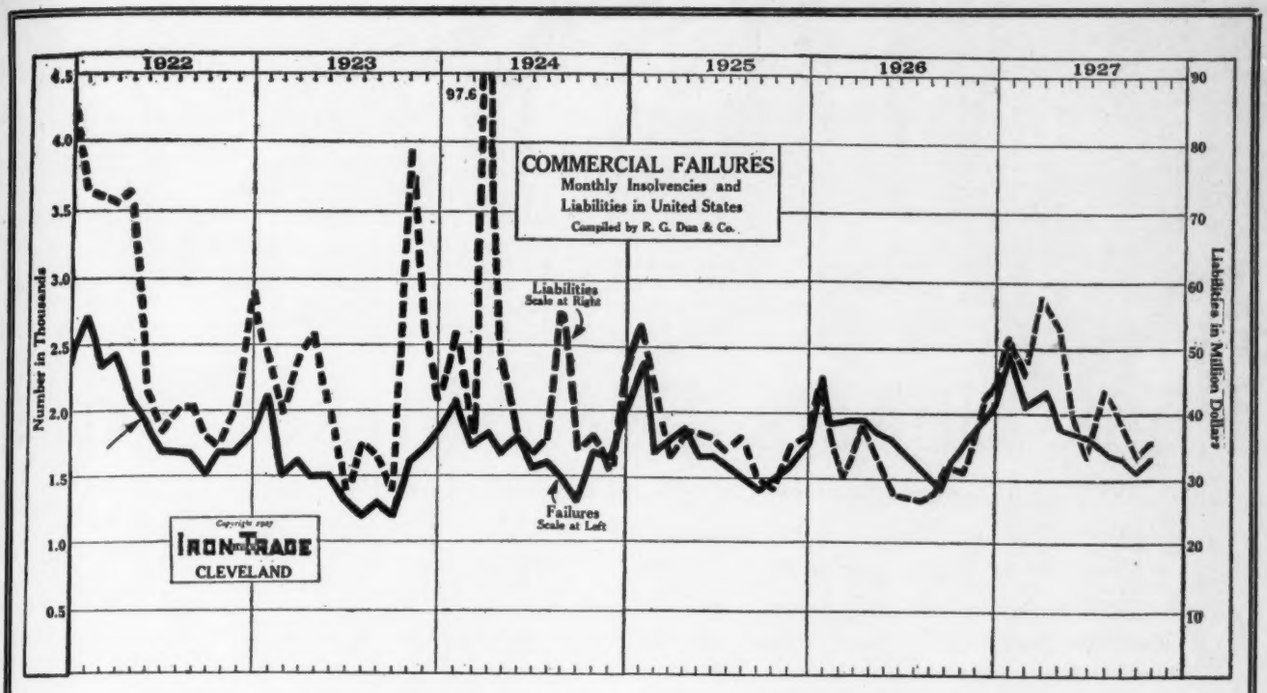
FREIGHT car awards in October were once more at a low level. During the period railroads ordered 567 freight cars. This compared with 357 cars ordered in September and with 2840 cars ordered in October, 1926. It is now evident that the aggregate of freight car buying for 1927 will fall below the total for the preceding year. This is partly a reflection of the somewhat lower level of freight traffic this year. As a result of increased efficiency the roads have a large surplus of idle cars.

Railroad Earnings

THE net railway operating income of railroads in September totaled $132,770,000. This figure reflected the normal seasonal increase in earnings for the roads and was at the highest level for any month of 1927. It was at the annual rate of return of 5.11 per cent on property investment of the railroads. This compared with net railway operating income of $145,763,000 or 5.76 per cent on property investment for September, 1926. Lower earnings than last year reflect reduced freight movements.



The Business Trend

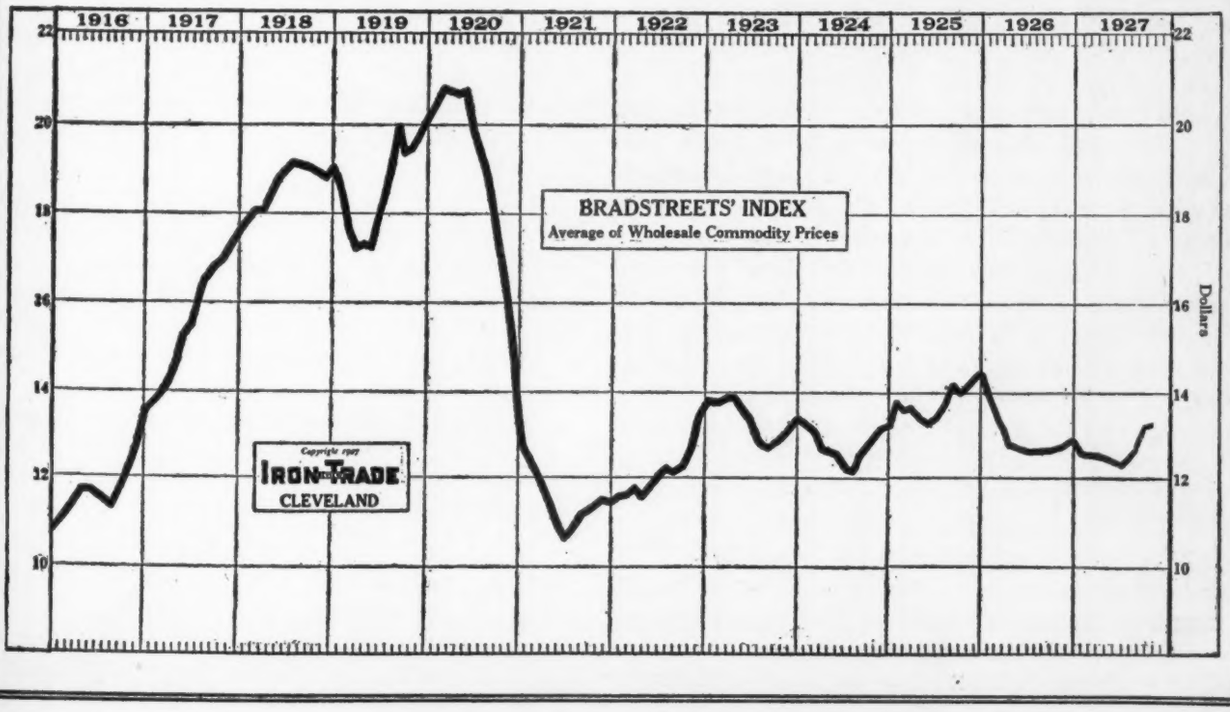


Commercial Failures

COMMERCIAL failures in October were greater and liabilities showed an increase compared with September and the corresponding month in 1926. Insolvencies for each month of 1927, according to the records of R. G. Dun & Co., have been greater than they were for the like months in 1926. In October, 1787 commercial failures were reported involving $36,235,832. These figures compare with 1573 failures for $32,786,000 in September and 1763 failures for $33,230,000 in October, 1926.

Bradstreet's Prices

BRADSTREET'S monthly index number of wholesale prices continued its rise in October, though the rate of increase was diminished. The gain for the index number was less than 1 per cent compared with a gain of 2.5 per cent in the preceding month. The index number now stands at 8.6 per cent over the low level touched in July. It is 5 per cent higher than that of Nov. 1, 1926, but 6 per cent under that of Nov. 1, 1925. Changes in separate groups of commodities during October were small.



Pipe, Sheets Set Market Pace

150,000 Tons Placed for Southwestern Pipe Lines while Ford Purchase for 100,000 Cars Nears—October Ingot Production Indicates Stocking—December May Bring Automotive Pig Iron Demand—Structural Activity Tapers—Coke Firmer

OCTOBER'S slight increase in the rate of steel production has been held with difficulty the past week but in two important departments—pipe and sheets—the outlook is brighter. Two southwestern gas line awards of 100,000 and 50,000 tons respectively made last week a record one in steel pipe tonnage. The Ford Motor Co. is expected to close immediately on sheets for 100,000 units, presumably the forerunner of comparable purchases of other products.

Not a lack of orders but the fragmentary character of those placed by the general run of consumers is holding the steelmaking rate below 70 per cent. The markets continue spotty, improved demand at Chicago, for example, contrasting with a decline in the Mahoning valley to the lowest production rate this year. Steel prices generally are none too strong and expected automotive purchasing may develop further concessions.

Steel ingot production is inconsistent with finishing operations, indicating a stocking of ingots. October's daily ingot rate of 126,500 gross tons was 2 per cent over the 124,312 tons of September but a sharp shrinkage from the 156,713 tons of last October. The long month enabled October to run up a total of 3,289,013 tons, compared with 3,232,108 tons in September. The 10-month total for 1927 is 36,788,807 tons, against 39,763,695 tons a year ago, and fractionally tops the 36,266,920 tons of the opening 10 months of 1925.

Coke Price Stronger

A slightly tighter price situation in beehive furnace coke is the sequel to lessened production and $2.85 and $2.90 more nearly describe the market, although $2.75 has not entirely disappeared on spot carloads. On foundry coke the minimum of $3.75 is unchanged.

Northern Ohio pig iron producers look for improved demand from the automotive industry next month. Pig iron selling generally is light, with moderately increased interest in first quarter needs in the Chicago and St. Louis districts. The cut of $1.25 to $16, at Birmingham, has not stimulated bookings and southern production is being curtailed.

Pipe Lines Are Placed

To the record week in pipe Standard Oil Co. of New Jersey has contributed 100,000 tons for its Amarillo-Denver gas line and Roxana Petroleum Corp. 50,000 tons, the former going to National Tube Co. and the latter to Youngstown Sheet & Tube Co. Well over 50,000 tons in southwestern pipe lines is still pending. Cast iron pipe is acting sympathetically, inquiry in the eastern markets approximating 50,000 tons. At Chicago 5800 tons has been placed. Cast pipe prices tend to react from their recent extreme weakness.

Structural business continues to bow to unseasonal weather. New inquiry in featured by 11,000 tons for an office building at Chicago, while 18,000 tons for a bridge at Cleveland is near placement.

Covering of the Ford sheet requirement is expected to quicken demand for strip, cold finished bars and similar automotive materials. Strip producers look to Ford for 50,000 tons shortly. Actual bookings, however, the past week, have been light in all these products, and the price structure is unstable.

Track Needs Are Steady

The railroads continue steadily to contract for their 1928 track requirements. Exclusive of the New York Central tonnage, 150,000 tons of rails will be up at Chicago shortly. The Boston & Maine has placed 18,000 tons, some of which may be specified immediately to repair flood damage, while the Erie has distributed 32,000 tons to eastern and 15,000 tons to

The Market Section

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Nov. 9, 1927	Oct., 1927	Aug., 1927	Nov., 1926
PIG IRON				
Bessemer, valley, del., Pittsburgh	$19.76	19.76	20.26	22.01
Basic, valley	17.00	17.00	17.50	18.75
Basic, eastern del., eastern Pa.	19.50	19.50	19.75	22.50
*No. 2 foundry, del., Pittsburgh	19.26	19.26	19.26	21.36
No. 2 foundry, Chicago	18.50	18.75	19.50	21.00
*Southern No. 2, Birmingham	17.25	17.25	17.25	20.00
*Southern Ohio, No. 2 Ironton	20.00	19.00	19.00	20.00
**No. 2X, Virginia furnace	21.25	21.50	21.50	22.75
**No. 2X, eastern, del. Phila.	20.51	20.66	21.26	23.51
Malleable, valley	17.50	17.50	17.50	19.75
Malleable, Chicago	18.50	18.75	19.50	21.00
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del., Pittsburgh	18.76	18.76	18.76	21.01
Ferromanganese, del., Pittsburgh	94.79	94.79	94.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.85	2.85	3.00	4.75
Connellsville, foundry, ovens	3.75	3.75	4.00	5.85
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	34.00	34.00	33.75	36.00
Sheet bars, open-hearth, Pittsburgh	34.00	34.00	33.50	36.00
Billets, open-hearth, Pittsburgh	33.00	33.00	33.00	35.00
Wire rods, Pittsburgh	41.00	42.50	43.00	45.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.75	1.75	1.80	2.00
Steel bars, Chicago	1.85	1.85	1.95	2.10
Steel bars, Philadelphia	2.07	2.07	2.12	2.32
Iron bars, Philadelphia,	2.07	2.07	2.12	2.22
Iron bars, Chicago	1.85	1.90	2.00	2.00
Shapes, Pittsburgh	1.75	1.75	1.80	2.00
Shapes, Philadelphia	2.07	2.07	2.02	2.22
Shapes, Chicago	1.85	1.85	1.95	2.10
Tank plates, Pittsburgh	1.75	1.75	1.80	1.90
Tank plates, Philadelphia	2.07	2.07	2.12	2.22
Tank plates, Chicago	1.85	1.85	1.95	2.10
Sheets, black, No. 24, Pittsburgh	2.80	2.95	3.00	3.10
Sheets, blue anl., No. 10, Pittsburgh	2.10	2.15	2.25	2.40
Sheets, gal., No. 24, Pittsburgh	3.75	3.80	3.85	3.95
Sheets, black, No. 24, Chicago	3.05	3.10	3.15	3.25
Sheets, blue anl., No. 10, Chicago	2.30	2.35	2.40	2.55
Sheets, galvanized, No. 24, Chicago	3.90	3.95	4.00	4.10
Wire nails, Pittsburgh	2.50	2.55	2.55	2.65
Wire nails, Chicago	2.60	2.60	2.60	2.70
Tin plate per base box, Pittsburgh	$5.30	5.30	5.50	5.50
OLD MATERIAL				
Heavy steel, Pittsburgh	14.00	14.50	15.00	17.00
Heavy melting steel, eastern Pa.	14.00	14.00	13.75	15.95
Heavy melting steel, Chicago	11.50	11.75	12.35	13.00
No. 1 wrought, eastern Pa.	15.75	15.75	15.95	17.00
No. 1 wrought, Chicago	11.20	11.40	13.45	14.10
Rails for rolling, Chicago	14.00	14.70	15.00	16.50

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (November 9, 1927)	**$35.45**
Last week (November 2, 1927)	**35.51**
One month ago (October, 1927)	**35.67**
Three months ago, (August, 1927)	**36.25**
One year ago (November, 1926)	**38.43**
Ten years ago (November, 1917)	**58.29**
Fourteen years ago (November, 1913)	**24.02**

western mills. The Chicago & North Western is a prospective buyer of 1850 freight cars. Revised figures on 1927 car orders show that to Nov. 1 the total is only 44,284 compared with 47,660 in the like period last year.

Independent sheet mills reported sales of only 232,000 tons in October, compared with 258,427 tons in September and 212,029 tons last October. October production, at 245,000 tons, gained appreciably over the 220,919 tons of September but the comparison with the 314,598 tons of October, 1926, is less encouraging.

The British pig iron market has reacted from the renaissance in buying late in October, when many melters covered well into the first quarter, and several stacks have been blown out.

Weakness in wire rods and eastern pig iron has lowered the IRON TRADE REVIEW composite of 14 leading iron and steel products 6 cents this week, to $35.45, which compares with an average of $35.67 for October and $38.43 for last October.

Late News Flashes

Valley Mills Curtail Further

Youngstown, O., Nov. 8.—Mill operating rates slipped farther this week, independent steelmakers dropping 2 open-hearth furnaces to 29 active out of 53. Carnegie Steel Co. is 55 per cent of capacity. Independent sheet units active now are 71, against 96 last week, out of 127. Two lapweld mills went down, leaving 11 out of 18 units active beside both seamless units. Independent bar mill activity is not above 35 per cent, and Carnegie 55 per cent. Strip mills are 65 per cent active and tin mill 90.

Chicago Steel Rate Holds at 65

Chicago, Nov. 8.—Steelworks operations at slightly under 65 per cent show practically no change. The leading interest has 12 of its 27 steelworks blast furnaces active—six at Gary, five at South Chicago, and one at Joliet. Twenty of the 36 steelworks furnaces here are active.

Weigh Standards for Foundry Refractories

Washington, Nov. 8.—Standard sizes and shapes of malleable foundry refractories will be discussed at a conference called here Nov. 10 by the division of simplified practice, department of commerce. A joint committee on foundry refractories, at work two years, has submitted recommendations.

Industry Sustains Little Flood Damage

Worcester, Mass., Nov. 8.—As flood waters recede in New England it is seen that industry has not been seriously hit save in portions of Vermont, including some foundries and several machine makers there. Practically no damage has been sustained by Worcester plants. Some suspensions are reported at Springfield. Textile mills suffered most.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

emifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	38.30 to 39.30
Chicago	33.00
Forging, Pittsburgh	39.00
Forging, Philadelphia	43.30 to 44.30

SHEET BARS

Pitts., Young., and Cleve.	$34.00

SLABS

Pitts., Young., and Cleve.	$33.00

WIRE RODS

Pittsburgh	40.00 to 42.00
Cleveland	40.00
Chicago	42.00 to 43.00

Standard extras, $5 for screw stock: $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

All grades, Pittsburgh	1.75c

Standard Structural Shapes

Pittsburgh	1.75c
Philadelphia	2.07c to 2.17c
New York	2.04c to 2.14c
Chicago	1.85c
Cleveland	1.94c
Birmingham	1.90c to 2.00c
Pacific coast, c.i.f.	2.40c

Steel Plates

Pittsburgh	1.75c
Philadelphia	2.07c to 2.12c
New York	2.09c to 2.14c
Chicago	1.85c
Cleveland	1.94c
Birmingham	1.90c to 2.00c
Pacific coast, c.i.f.	2.40c

Iron and Steel Bars

Pittsburgh, soft steel	1.75c
Pittsburgh, cold finishing	1.90c
Pittsburgh, forging quality	1.90c
Philadelphia, soft steel	2.07c to 2.12c
New York, soft steel	2.09c to 2.14c
Chicago, soft steel	1.85c
Cleveland, soft steel, mill	1.75c
Cleveland, soft steel, del.	1.80c to 1.94c
Birmingham, soft steel	1.90c to 2.00c
San Francisco, soft steel	2.35c to 2.40c
Pittsburgh refined iron	2.75c to 4.25c
Pittsburgh, reinforcing billet	1.75c to 1.85c
Chicago, reinforcing billet	2.20c to 1.65c
Chicago, reinforc. rail steel	1.85c to 1.90c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	1.80c to 1.85c
Mill, rail steel	1.65c to 1.75c
Philadelphia, common iron	2.07c to 2.22c
New York, common iron	2.09c to 2.24c
Chicago, common iron	1.85c to 1.90c

Hoops, Bands, Strips

Hoops, Pitts., 6 in. and under	2.20c to 2.30c
Bands, Pitts., 6 in. and under	2.20c to 2.30c
Bands, Pittsburgh, over 6 in.	2.00c to 2.10c
Hot rolled strip, Pitts., stamping quality, over 6 in.	1.95c to 2.10c
Hot rolled strip steel, Chicago	2.20c to 2.40c
Bands, Chicago, under 6-in.	2.40c
Bands, Chicago, 6 in. and over	2.20c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier base, Pittsburgh, Cleveland (less than 3 tons)	3.00c to 3.25c
Worcester, Mass.	3.40c
Stripsheets, with blue annealed extras, 12 in. and wider, Pittsburgh	2.15c to 2.25c

Cold Finished Steel

Cold finished steel bars, drawn or rolled, Pitts., Chi., c. l.	2.10c to 2.20c
Steel shafting, Pittsburgh, Chicago	2.30c
Cold finished steel bars, Cleve.	2.10c to 2.25c

Chain, Piling, Cut Nails

Cut nails, c.l., f.o.b. Mills	2.80c
Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.20c to 2.25c

Alloy Steel

Hot Rolled

F.o.b. Pittsburgh or Chicago

To Tonnage Users in Auto. Industry S.A.E. Series Numbers	100 lbs. Bars
2100 (*½ per cent Ni 0.10 to 0.20 per cent C.)	$2.90 to 3.00
2300 (3½ per cent nickel)	4.10 to 4.25
2500 (5 per cent nickel)	5.00 to 5.10
3100 (Nickel chromium)	3.10 to 3.20
3200 (Nickel Chromium)	4.50 to 4.75
4100 (Chromium molybdenum)	3.05 to 3.15
4100 (Cr. Mo. 0.25-0.40)	3.90 to 4.05
4615 (Ni. 1.50%; Mo. 0.10-0.20)	4.25 to 4.50
5100 (Chromium steel)	3.10 to 3.20
6100 (Cr. V., forging)	4.00 to 4.10
6100 (Cr. V., spring)	3.60 to 3.80
9200 (Silico Mang., spring steel)	3.00 to 3.20
9250 (Silico Mang., spring steel)	3.00 to 3.10
Ni. Cr. V., (Ni. 1½%, Cr. 1% V. 0.15%)	4.00 to 4.10

*Mill number not formally accepted by S. A. E.

Hot rolled alloy billets 4 x 4-inch and over take the same prices per gross tons as same specification of alloy bars per net ton. Sizes from 4 x 4-inch down to 2½ x 2½-inch take same basis plus $5 a ton extra. Billets smaller than 2½ x 2½-inch take bar price on net ton basis.

Cold Rolled

Cold rolled alloy steels take 1c a pound extra over hot rolled when mean carbon is 0.30 or under. When the carbon is above 0.30 the extra for cold rolled is 1.75c, including annealing.

Sheets

SHEET MILL BLACK

No. 24, Pittsburgh base	2.75c to 2.90c
No. 24, Philadelphia, delivered	3.12c to 3.22c
No. 24, Gary, Indiana Harbor	3.00c
No. 24, Chicago, delivered	3.05c
No. 24, Birmingham, base	3.10c

TIN MILL, BLACK

No. 28, Pittsburgh	2.90c
No. 28, Gary base	3.00c

GALVANIZED

No. 24, Pittsburgh base	3.65c to 3.75c
No. 24, Philadelphia delivered	3.97c to 4.07c
No. 24, Gary, Indiana Harbor	3.85c
No. 24, Chicago, delivered	3.90c
No. 24, Birmingham, base	3.95c to 4.00c

BLUE ANNEALED

No. 10, Pittsburgh base	2.10c to 2.15c
No. 10, Philadelphia, delivered	2.42c to 2.47c
No. 10, Gary, Indiana Harbor	2.25c
No. 10, Chicago, delivered	2.30c
No. 10, Birmingham, base	2.35c

AUTOMOBILE

No. 28, Pittsburgh, base	4.15c

IRON

No. 10, Pitts., blue ann., c.l.	2.90c
No. 24, Pitts., Box annealed, 1-pass cold rolled, carload	3.85c
No. 24, Pitts., gal., c.l.	4.85c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.30 to 5.50

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.20c

*Price subject to quantity differentials.

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra

F.O.B. Cleveland and Pittsburgh base

Bright plain wire, No. 9 gage	2.40c
Annealed fence wire	2.55c
Galvanized wire, No. 9 gage	3.00c
Barbed wire, painted	3.00c
Barbed wire, galvanized	3.25c
	Per 100 lbs.
Wire nails	$2.50 to 2.55
Galv'd nails shorter than 1-in.	4.55
Galv'd nails, 1-in. and longer	4.55
Polished staples	3.00
Galvanized staples	3.25

Coated nails, 100 lb kegs, subject to Sept. 1, 1926, extra card over wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts. $20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relay, rails, Pitts., 60 to 70 lb.	25.00 to 27.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	2.75c to 2.80c
Spikes, boat and barge, Pitts.	3.10c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts. stand	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	2.25c

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del. 2½ points less.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled 3¼ to 3½-inch	46 off

Further discounts of seven 5 per cents for carolads or six 5 per cents for less-carload, on lap welded steel. On seamless hot rolled several more 5 per cents, and on charcoal two 10 per cents to two 10 and one 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Six-inch and over, Birming'm	$29.00 to 30.00
Four-inch, Birmingham	33.00 to 34.00
Four-inch, Chicago	39.20 to 42.20
Six-inch to 24-inch, Chicago	35.20 to 38.20
Over 24-inch, Chicago	45.20
Four-inch, New York	40.25 to 41.60
Six-inch and over, New York	37.25 to 38.25
Standard fittings, Bir. base	$100.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B

Bolts and Nuts

F.o.b. basing points, Pittsburgh, Cleveland Birmingham and Chicago.

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

CARRIAGE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Eagle list	70 off

MACHINE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Lag screws	70 off
Plow bolts, Nos. 1-2-3-7 heads	70 off
Tap bolts	70 off
Blank bolts	70 off
Stud bolts without nuts	70 off
Stove bolts, 80-10-5 off in packages; 80-10-5 with 2½ off in bulk.	
Tire bolts	60-5 off

NUTS

Semifinished	70 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1-in. diam and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset, 1-in. diam. and smaller	80-10-10 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.75c to 3.00c
Structural rivets, c.l., Chicago	2.85c to 3.10c

**Rivets, 7/16-inch and smaller, Pittsburgh, Cleveland and Chicago 70 and 10 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist.	$6.70 to 6.90 off
Wrought c.l., Pitts. dist.	6.75 off
Lock washers (dealers')	85-5 off
Lock washers (consumers)	85 off

Pig Iron

Much Better Demand Looked for in December—Current Sales Small, and Competition Keen in All Districts

PIG iron producers appear resigned to a further period of dullness, believing that tonnage will not develop sizeable proportions until December. The automotive industry is relied on to start the upward swing. Good business is anticipated for first quarter, as consumers' stocks are held down to the minimum. Second quarter contracts have been worked out, while current buying is on a hand-to-mouth basis. Some contracts are being placed for first quarter, but in most instances is sufficient only to cover business on melters' books. The competitive situation continues keen, furnaces going far out of their usual districts. Some Tennessee and Alabama iron has reached Ohio river points, while northern Ohio furnaces are selling in southern Ohio.

PITTSBURGH, Nov. 8.—Some pig iron sellers are going far afield in an effort to stir up business. Consumers in this district are taking their iron on contracts but are not placing large orders. These are not expected here until the middle of December. A valley merchant stack in the past week or two sold foundry iron in Cincinnati, Coshocton, Canton, Warren and at other Ohio points, all at $17.50, base, valley. A Coshocton radiator company bought 1000 tons while a Salem, O., sanitary ware manufacturer purchased 300 tons. The General Fire Extinguisher Co. placed 500 tons or more. Buyers in this territory are inquiring for iron but are purchasing only single carloads. Bessemer iron sales are more limited. One or two small lots were moved during the week at $18, valley. Basic iron is nominal at $17, valley, no sales or inquiries being noted.

Boston, Nov. 8.—Because foundries are sufficiently covered for pig iron for the rest of the year the market is quiet. An inquiry for 2000 tons for the Providence Fire Extinguisher Co. has been withdrawn, the company having decided not to buy at present. B. F. Sturtevant Co. bought a little iron, but not all that it will need. The Alabama price of $16, base, holds only for this year. The $16 to $17, base, Buffalo, price is reported general, which would make the New England delivered price $20.91 to $21.91. Little is being done.

New York, Nov. 8.—Sales of pig iron the past week aggregated at least 7000 tons, an improvement over recent weeks, including over 2000 tons for delivery elsewhere. New inquiries total 5000 tons, of which about 1500 tons is for first quarter. The leading first quarter inquiry comes from a New York state boiler manufacturer who wants 1000 tons for two plants. Another interest wants 500 tons for first quarter. The most important inquiries for this year are 500 tons for a Connecticut melter, 500 tons for a New York state plant, and 500 tons for a plant in northern New York. There are several quiet inquiries in New England which may develop into some activity in that territory shortly. Prices are unchanged, at $19 to $19.50, base, eastern Pennsylvania furnace. Buffalo iron usually is held at $17, base, furnace, although as low as $16 has been heard from one Buffalo maker. Small sales of Indian and Dutch foundry iron continue to be made, the former at $21.50, base, duty paid, tidewater, and the latter at $22, duty paid, tidewater.

It is expected that Witherbee, Sherman & Co. will blow in a furnace at Port Henry, N. Y. shortly.

Pig Iron Prices

Per gross ton

Bessemer, valley furnace	$18.00
Bessemer, del. Pittsburgh	19.76
Basic, valley furnace	17.00
Basic, del., Pittsburgh	18.76
Basic, Buffalo furnace	16.50 to 17.00
Basic, del., eastern Pa.	19.50 to 20.00
Malleable, valley furnace	17.50
Malleable, del., Pittsburgh	19.26
Malleable, del., Cleveland	18.50
Malleable, Chicago furnace	18.50
Malleable, Buffalo furnace	17.50
Malleable, del., eastern Pa.	20.25 to 20.75
No. 1X, eastern del., Phil.	20.76 to 21.26
No. 1X, Buffalo furnace	18.00 to 18.50
No. 1 foundry, Chicago furnace	19.00
No. 2 foundry, valley furnace	17.50
No. 2 foundry, del., Pittsburgh	19.26
No. 2 fdy., Everett, Mass., fur.	19.00 to 21.00
No. 2 foundry, Buffalo furnace	17.00
No. 2 foundry, Chicago furnace	18.50
No. 2 foundry, Granite City	19.50 to 20.00
No. 2 foundry, Ironton furnace	19.00 to 19.50
No. 2 foundry, del., Cleveland	18.50
No. 2 foundry del., Phila.	19.76 to 20.26
No. 2 foundry, N. J., tidewater	19.78 to 21.76
No. 2 foundry, east. N. Y. furnace	18.00 to 20.00
No. 2X, east. N. J., tidewater	19.78 to 22.26
No. 2X, eastern del., Phila.	20.26 to 20.76
No. 2X, foundry, Buffalo furnace	17.50
No. 2X, eastern del., Boston	23.15 to 24.15
No. 2 Alabama, Birmingham	16.00
No. 2 Alabama, del., Cincinnati	19.69
No. 2 Tenn., Birmingham base	17.25 to 18.00
No. 2 Tenn., del., Cincinnati	20.94
No. 2 Alabama, del., Philadelphia	22.01
No. 2 Alabama, del. Chicago	22.01
No. 2 Ala., del. Chicago river-rail	20.18
No. 2 Ala., del. Boston, rail-water	24.16 to 25.16
No. 2 Alabama, del. Cleveland	22.01
No. 2 Alabama, del. St. Louis	20.42
No. 2X, Virginia furnace	21.25
No. 2X, Virginia, del. Phila.	26.04
No. 2X, Virginia, del., Jersey City	26.37
No. 2X, Virginia, del. Boston	26.71
Gray forge, val., del., Pittsburgh	18.76
Low phos., standard, valley	27.50
Low phos., standard, Phila.	25.26 to 27.79
Low phos., copper bearing fur.	23.00 to 24.00
Low phos., copper free, Phila.	24.76 to 27.79
Charcoal, Birmingham	29.00
Charcoal, Superior, del. Chicago	27.04

Silvery iron, Jackson county, Ohio furnace, 5 per cent $24.00; 6 per cent $25.00; 7 per cent $26.00; 8 per cent $27.00; 9 per cent, $28.00; 10 per cent $30.00; 11 per cent $32.00; 12 per cent $34.00; 13 per cent $36.00; and 14 per cent $38.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $32.00; 11 per cent $34.00; 12 per cent $36.00; 13 per cent $38.00; and 14 per cent $40.00; 15 per cent $42.50; 16 per cent $45.00; 17 per cent $47.50.

Crane Co., Bridgeport, Conn., is inquiring for 500 tons of high silicon foundry iron.

Philadelphia, Nov. 8.—A fair number of orders for pig iron are noted in the market here, but the tonnages are small. Principal new inquiries are for 500 tons of foundry iron for American Engineering Co., Philadelphia; 500 tons for Sanitary Co. of America, Linfield, Pa.; and about 1300 tons of special iron for an eastern steel company. Prices continue $19 to $19.50, base, furnace, for eastern Pennsylvania foundry iron. It is learned that a round tonnage of basic, not included in prior reports, was sold about two weeks ago. No basic has been sold under $19.50, delivered in this district. Copper free low phosphorus iron now is $24.76, delivered, Philadelphia. Virginia foundry iron is $20.50 to $21, base, furnace.

Buffalo, Nov. 8.—Pig iron inquiry totals about 1000 tons, sales being correspondingly small. It is reported on good authority that while all Buffalo district foundry iron sales are on a minimum base of $17, one producer here has offered to sell iron in the East at a price which figures not more than $16.50, base, furnace. Sixty-five per cent of the stacks of this district are in blast.

Cleveland, Nov. 8.—Blast furnace interests look for improvement in December, especially in demand from the automotive industry. The fact that inventories are being taken now is believed to indicate preparations for an early resumption of business on a much larger scale. A merchant furnace producer reports its automobile plant customers are taking full quotas on contracts. The high rate of shipments generally is encouraging. Current sales are comprised largely of small lots for prompt delivery, though a few orders have been booked for the first quarter. One producer is understood to have taken some business for first quarter at 25 cents or more over its present prices. The total of sales made by furnace interests with headquarters here the past week was 14,000 tons, about the same volume that has been reported for several weeks past. Keen competition continues for business in southern Ohio and Indiana, and $16.50 to $17, base, furnace, is quoted by some northern interests. Three Fort Wayne, Ind.,

(*Concluded on Page* 1197)

Coke

Beehive Production Further Curtailed, Stabilizing Prices—Foundry Demand Decreases

FURTHER restriction of coke production has had the effect of stabilizing prices, $2.85 to $2.90 being the general quotations for blast furnace fuel, with $2.75 now the exception. One furnace interest using beehive coke is preparing to bank, and is postponing shipments. Foundries are operating at a reduced rate, some of them only three days a week.

Pittsburgh, Nov. 8.—Conditions in the beehive coke market are similar to those prevailing for the past several weeks, except that more limited output curtails the supply available for the open market. This is accompanied by slightly tighter price conditions. More sales are arranged at $2.85 to $2.90 instead of $2.75. The latter figure is available for single carloads, now and then, over widely scattered areas. No increased blast furnace demand is encountered. One furnace, to bank within a few days, is holding up coke shipments. Theoretically this increases the potential spot market supplies, but the cokemaker may decide to bank its ovens. Heating coke demand is largely met from by-product sources. Some beehive is sold at $2.50 to $2.75. Foundry coke demand is more limited as foundries limit operations to three days a week. Cokemakers accept the situation with good grace, not sacrificing prices. While some are willing to take $3.75 and $4, others are adhering to $4.25 to $4.75. Premium brands are $5.10.

Production of coke in the Connellsville region in the week ended Oct. 29 was 47,860 tons, compared with 48,530 tons in the preceding week, according to the *Connellsville Courier*.

Boston, Nov. 8.—The coke situation remains unchanged. Shipments are ahead of a month ago. By-product foundry coke holds at $12, delivered.

New York, Nov. 8.—Demand for foundry coke continues small, but the market for screened sizes for domestic heating purposes is broadening and sellers report that such coke is scarcer. Screened coke is bringing around $4.25, Connellsville, whereas the market on spot beehive foundry coke is $4.25 to $4.50, Connellsville, with higher prices on the usual premium brands. By-product foundry coke is unchanged at $8.75, ovens, equivalent to $9.59 to $10.77, delivered at Newark and other northern New Jersey consuming points.

Detroit, Nov. 8.—Demand for foundry coke is small, with current requirements fairly well covered. Little improvement is looked for this month. The price is steady at $9, ovens.

Cincinnati, Nov. 8.—Foundry coke is moving at a better rate, while demand for furnace coke continues slow. Contracts for 1928 are being closed. A local agency for a large producer reports over half the company's production already covered by contract. A reduction of 75 cents a ton by competing Chicago and Milwaukee makers unsettled the market. Local agents expect to cover all their contracts for 1928 by the end of November. No price change is contemplated.

St. Louis, Nov. 8.—The reduced melt at mills, foundries and machine shops has curtailed coke demand. By-product ovens report increased accumulations, though to date shipments have been fairlv heavy, all conditions considered. Since the middle of October there has been an increasing number of requests for delayed shipments. Quotations are unchanged, though concessions are reported where tonnage and delivery periods are involved.

Birmingham, Ala., Nov. 8.— Production of coke is likely to be unchanged the remainder of the year. Independent producers have no surplus stock and are shipping foundry coke in large tonnage. The base for foundry coke still is $5.50, on contract. A small amount of beehive is being produced and brings $6.

Coke Prices

Beehive Ovens

Prices per net ton

Connellsville furnace	$2.75 to 3.00
Connellsville foundry	3.75 to 4.00
New River foundry	7.00 to 8.00
New River furnace	6.00
Wise county furnace	4.25 to 5.50
Wise county foundry	4.00 to 5.00
Alabama foundry	6.00

By-Product

Foundry, Newark, N. J.; del.	9.59 to 10.77
Foundry, Chicago, ovens	9.75
Foundry, New England, del.	12.00
Foundry, St. Louis	9.75
Foundry, Birmingham	5.50 to 6.00
Foundry, Indianapolis, del.	9.75
Foundry, Ashland, Ky.	7.50
Foundry, Portsmouth, O.	7.50
Foundry, Detroit, ovens	9.00
Foundry, Buffalo, ovens	9.00

Ferroalloys

Consumption Increased Slightly—Prices for 1928 Expected Soon

Pittsburgh, Nov. 8.—Little or no change is manifested in ferroalloys, the market still being quiet. A slight increase in specifications seems to betoken greater consuming activity in ferromanganese and spiegeleisen, particularly the latter. Some galvanized shops are busier. Ferromanganese is unchanged at $90, except that one British maker is understood to be quoting $95, c.i.f. Atlantic seaboard. Spiegeleisen, 19 to 21 per cent grade, usually is quoted at $31 to $32, furnace. Only an occasional carload is bought. Some sellers of ferrosilicon will open books between Nov. 10 and 15. Some low-grade material is being sold in carload lots at full market prices.

New York, Nov. 8.—Contract prices which will apply on several special ferroalloys for next year probably will be named soon. While there is some talk that not much change in prices for next year is expected, in authoritative quarters it is said the talk is idle, because the basis for prices in various ferroalloys is not yet figured. Tungsten is quiet, with a few distress lots of ore recently being offered at lower prices, but with little change elsewhere. A limited quantity of wolframite might be had at about $10 a short ton unit, duty paid, but other prices range up to $10.25. Scheelite is held at about $10.50, though some lower prices recently were reported. Ferrotungsten is about 92.00c a pound contained.

Chicago, Nov. 8.—Some inquiries are appearing for 1928 ferromanganese and ferrosilicon, but contract prices have not yet been determined. A few scattered sales of spiegeleisen are reported at $30.

Ford Buys Alloy Steel

Detroit, Nov. 8.—Ford Motor Co has been a better buyer of alloy steels and appears to have covered farther on this product than any other. October sales were good for most producers but thus far November has not maintained the October rate. Northern Ohio producers believe a more stable market will result when water shipments end for the season. Sharp competition makes spring steel prices variable. The minimum on 3½ per cent nickel steel is 4.10c, but small lots are priced at 4.15c and higher. The range on 5 per cent nickel is 5.00c to 5.10c, on chrome vanadium forging 4.00c to 4.10c and on chrome vanadium spring 3.60 to 3.80c.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$90.00
Ferromanganese, del., Pittsburgh	94.79
Spiegeleisen, 19 to 21 per cent domestic furnace	30.00 to 32.00
Ferrosilicon, 50 per cent freight allowed	85.00 to 87.50
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.50
Ferrotungsten stand. lb. cont.	92.00 to 95.00
Ferrovanadium, 30-40 per cent, per lb. estimated on analysis	3.15 to 3.60
Ferro-carbon-titanium carload, producers' plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18%)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala., (24 per cent)	122.50

Plates

Demand Shows Further Tendency to Narrow—Oil Tank Business Dwindles—Prices Steady

QUIET conditions are reported in the plate market, the volume of business in the past week having been less than for several weeks preceding. Prices appear steady on the basis of 1.75c, Pittsburgh, and 1.85c, Chicago, although competition in the southwestern field has led to some concessions on the Chicago price. About 1500 tons additional for oil tank work was placed at Chicago.

PLATE PRICES, PAGE 1182

Philadelphia, Nov. 8.—A fair number of plate orders are noted in the market here, but most of them are for small tonnages, hence mills continue to operate at a reduced rate, with no backlogs. The price, 1.75c, Pittsburgh, continues firm, although large consumers in some instances are obtaining the usual preferences. Several railroads are preparing to buy locomotives. Baldwin Locomotive Works has booked ten for the Canadian National railways. Shipyards are bidding for two or three lightships for the lighthouse service, each involving 300 tons of steel. Shipyards report several other boats in prospect. Pennsylvania railroad is expected to place shortly a passenger vessel for the Cape Charles-Norfolk route.

Pittsburgh, Nov. 8.—Plate business becomes increasingly dull. Most individual tank inquiries or other jobs requiring plates coming up involve 50, 60 or 75 tons. While mills do not say what the quotation on tonnage would be, they state 1.75c is the minimum available on current light business.

Chicago, Nov. 8.—For additional oil tank work in Texas 1500 tons of plates was placed with a local mill the past week. Uncertainty of continued high activity in southwestern oil fields makes tank outlook speculative. Inquiry outstanding has diminished as orders have been placed steadily by tank builders. No new inquiry has appeared. Plate orders for the manufacturing trade mainly are for small tonnages. The price is 1.85c, Chicago, to the manufacturing trade, but competition in the Southwest has brought concessions.

CONTRACTS PLACED

250 tons, miscellaneous scattered tank business, to Pittsburgh-Des Moines Steel Co.

125 tons, pipe line dredge for United States engineers, Duluth, to Marine Iron & Shipbuilding Co.

CONTRACTS PENDING

500 tons, stern wheel packet boat for Pittsburgh & Cincinnati Packet Co., plans being drawn by Capt. Thomas Dunbar, Pittsburgh; bids about to be asked.

Continuous Tin Mill is in Operation

Initial operation of the new continuous tin mill of the American Sheet & Tin Plate Co. at Gary, Ind., was attended by executives of the company Nov. 3. Slabs are reduced continuously on 10 stands of rolls to breakdown sheets No. 16 gage thick, 26 inches wide and 120 feet long. The breakdowns are sheared to the desired length automatically, paired, doubled mechanically and then charged into the sheet furnace at the hot mill preparatory to being rolled to the desired specification. The new mill is the only continuous unit in the world rolling black plate continuously and marks a new era in the manufacture of tin plate.

To Allot Space Soon for Foundry Show

The American Foundrymen's association has completed negotiations for the exhibition of foundry equipment and supplies at the forthcoming Philadelphia convention, May 14-18. All applications for space received by C. E. Hoyt, secretary, Marquette building, Chicago, on or before Dec. 5 will be considered as of that date. A general layout of the exhibition space is being sent to exhibitors.

Final details giving the booth numbers and locations will be submitted first to all firms that file applications for space by Dec. 5. As in the past, exhibits of this character will be allocated to different sections of the exhibit halls and opportunity will be given manufacturers to elect first, second, third and fourth choices.

Of the exports of forging machines exported from the United States in August, Germany received 154,515 pounds and Canada, 140,697 pounds.

Semifinished

Business Still Restricted—Operations at Low Rate—Prices on a Steady Basis

DEMAND for semifinished material continues restricted to small tonnages, and production in some districts is slightly lower than a week ago. Contracts for first quarter have not yet received consideration. Current prices are steady, and the trade does not anticipate a change for the first quarter. A large skelp tonnage is involved in an order for 100,000 tons of line pipe.

SEMIFINISHED STEEL PRICES, PAGE 1182

Pittsburgh, Nov. 8.—It is difficult for semifinished steel sellers to get in enough specifications to maintain satisfactory operating conditions. No new business has appeared. Slabs and billets are unchanged at $33 and sheet bars at $34. Forging billets are $39, with only a limited amount of business developing. Oil well toolmakers are unimportant as consumers. On wire rods $41 and $42 at times appear against inquiries on which $43 originally was named. Some cold bar finishers purchase rods, although most prefer bars. Some rivet-makers buy limited tonnages. Skelp is moving against contracts, generally at 1.75c. Considerable skelp tonnage will be taken from Carnegie Steel Co. by National Tube Co. in connection with its order of yesterday for 100,000 tons of 20 and 22-inch line pipe.

Youngstown, O., Nov. 8.—Scattered small-lot sales make up the only outward activity in semifinished steel here, consumers confining specifications to immediate shipments. Sheet bar activity is restricted by the low operating rates of sheet mills and new billet sales are even more scarce. Sheet bars hold at $34, and billets and slabs at $33, Pittsburgh and Youngstown.

Cleveland, Nov. 8.—Demand for semifinished steel continues limited to carload lots. Prices are steady.

Chicago, Nov. 8.—Miscellaneous orders for billets are reported, and a fair demand continues for sheet bars. Small billets are $33, base, Chicago.

Name New Sales Manager

Youngstown, O., Nov. 8.—C. A. Poxson has been made Detroit district sales manager for Newton Steel Co., succeeding H. B. MacGregor, who has resigned.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross Tons Delivered to Consumers

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.50 to 10.75
Boston (dealers)	8.50 to 9.00
Buffalo, No. 1	14.25 to 14.75
Buffalo, No. 2	12.75 to 13.25
Chicago	11.00 to 11.50
Cincinnati (dealers)	11.00 to 11.50
Cleveland, No. 1	13.25 to 13.75
Cleveland, No. 2	12.75 to 13.25
Detroit, No. 1	11.50 to 12.00
Eastern Pennsylvania	13.50 to 14.00
Eastern Pennsylvania, No. 2	11.00 to 11.50
Bethlehem delivery	13.50 to 14.00
New York (dealers) (railroad)	10.00 to 10.85
New York (dealers) (yard)	6.75 to 7.00
Pittsburgh, No. 1	14.00 to 14.50
St. Louis	10.75 to 11.00
Valleys, No. 1	14.75 to 15.00

COMPRESSED SHEETS

Buffalo	12.25 to 12.75
Chicago	10.00 to 10.50
Cleveland	12.25 to 12.50
Detroit	10.25 to 10.75
Pittsburgh	13.50 to 14.00
Valleys	14.50

BUNDLED SHEETS

Buffalo	9.50 to 10.00
Cincinnati (dealers)	9.50 to 10.00
Cleveland	11.00 to 11.25
Eastern Pennsylvania	10.50 to 11.00
Pittsburgh	12.50 to 13.00
St. Louis	7.75 to 8.25

SHEET CLIPPINGS, LOOSE

Chicago	8.25 to 8.75
Cincinnati	8.50 to 9.00
Detroit	7.50 to 8.00
St. Louis	7.50 to 8.00

STEEL RAILS, SHORT

Birmingham	12.50 to 13.00
Buffalo	16.00 to 16.50
Chicago	14.50 to 15.00
Cincinnati (dealers)	16.00 to 16.50
Detroit	7.50 to 8.00
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	12.50 to 13.50
Boston (consumers)	12.50 to 13.00
Buffalo	12.75 to 13.25
Chicago (net)	12.00 to 12.50
Cincinnati (dealers) net	9.25 to 9.75
Cleveland	12.00 to 12.50
Detroit (net tons)	11.00 to 11.50
Eastern Pennsylvania	12.50 to 13.00
New York dealers) (mill)	8.25 to 8.50
Pittsburgh	12.00 to 12.50
St. Louis	13.00 to 13.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	16.50 to 17.00
Cincinnati (dealers)	13.50 to 14.00
Eastern Pennsylvania	17.50 to 18.50
Pitts. billet and bloom crops	18.50 to 19.00
Cleveland, billet and bloom crops	17.00 to 17.50

SHOVELING STEEL

Chicago	11.50 to 12.00
Pittsburgh	15.50 to 16.00
St. Louis	10.75 to 11.00

KNUCKLES, COUPLERS, SPRINGS

Chicago	13.25 to 13.75
Eastern Pennsylvania	16.00 to 16.50
Pittsburgh	15.50 to 16.00
St. Louis	12.50 to 13.00

FROGS, SWITCHES, GUARDS

Chicago	13.00 to 13.50
St. Louis	13.00 to 13.50

ANGLE BARS—STEEL

Buffalo	15.25 to 15.75
Chicago	13.00 to 13.50
St. Louis	11.50 to 12.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 11.50
Boston (dealers)	10.50 to 11.00
Buffalo, No. 1	12.50 to 13.00
Buffalo, No. 2	14.25 to 14.75
Chicago, No. 1	11.20 to 11.75
Chicago, No. 2	11.50 to 12.00
Cincinnati, No. 1 (dealers)	11.00 to 11.50
Cleveland, No. 1	11.50 to 12.00
Eastern Pennsylvania	15.50 to 16.00
New York, No. 1 (dealers)	12.50 to 13.00
Pittsburgh, No. 1	11.00 to 11.50
Pittsburgh, No. 2	14.00 to 14.50
St. Louis, No. 1	10.00 to 10.50
St. Louis, No. 2	10.75 to 11.00

WROUGHT PIPE

Boston (dealers)	8.00 to 8.50
Eastern Pennsylvania	12.50 to 13.00
Buffalo	13.00 to 13.50
New York (dealers)	8.25 to 8.75

YARD WROUGHT

Boston	8.50 to 9.00
Eastern Pennsylvania	15.00 to 15.50

BUSHELING

Buffalo	12.75 to 13.25
Chicago, No. 1	10.00 to 10.50
Chicago, No. 2	8.50 to 9.00
Cincinnati, No. 1 (dealers)	10.50 to 11.00
Cincinnati, No. 2	7.00 to 7.50
Pittsburgh, No. 1	12.00 to 12.50
St. Louis, No. 1	9.75 to 10.25

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston	6.00 to 6.50
Buffalo	9.50 to 10.00
Chicago	7.50 to 8.00
Cincinnati (dealers)	8.00 to 8.50
Cleveland	9.00 to 9.25
Detroit	7.00 to 7.50
Eastern Pennsylvania	10.50 to 11.00
New York (dealers)	6.50 to 7.25
Pittsburgh	11.00 to 11.50
St. Louis	6.25 to 6.75

CAST IRON BORINGS

Birmingham (chemical)	13.00 to 13.50
Birmingham plain	8.00 to 8.50
Boston, (chemical)	10.75
Boston (dealers)	6.50 to 7.50
Buffalo	10.25 to 10.75
Chicago	9.50 to 10.00
Cincinnati (dealers)	8.50 to 9.00
Cleveland	10.50 to 10.75
Detroit	8.50 to 9.00
Eastern Pennsylvania	11.50
Eastern Pennsylvania (chem.)	15.00 to 16.00
New York (dealers)	7.25
Pittsburgh	11.00 to 11.50
St. Louis	8.75 to 9.00
Valleys	13.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	5.50 to 6.00
Buffalo	10.25 to 10.75
Cincinnati (dealers)	8.50 to 9.00
Cleveland	10.75 to 11.00
Detroit	8.50 to 9.00
Eastern Pennsylvania	10.00 to 10.50
New York (dealers)	7.00 to 7.35
Pittsburgh	11.00 to 11.50

PIPES AND FLUES

Chicago (net)	7.50 to 8.00
Cincinnati (dealers)	8.00 to 8.50
St. Louis	9.25 to 9.75

RAILROAD GRATE BARS

Buffalo	11.00 to 11.50
Chicago (net)	10.50 to 11.00
Cleveland	12.00 to 12.50
Eastern Pennsylvania	12.50 to 13.00
New York (dealers)	8.75 to 9.25
St. Louis	11.00 to 11.50

FORGE FLASHINGS

Boston (dealers)	6.00 to 6.50
Buffalo	11.50 to 12.00
Chicago	9.00 to 9.50
Cleveland (over 10 in.)	12.00 to 12.50
Detroit	9.50 to 10.00
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	6.00 to 6.50
Chicago	14.00 to 14.50
Eastern Pennsylvania	10.50 to 11.00

ARCH BARS AND TRANSOMS

Chicago (net)	18.00 to 18.50
St. Louis	19.00 to 19.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.00 to 8.50
Buffalo	12.75 to 13.25
Chicago	10.00 to 10.50
Cleveland	12.00 to 12.25
Eastern Pennsylvania	12.50 to 13.00
Pittsburgh	13.00 to 13.50
St. Louis	8.50 to 9.00

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston (shipping point)	15.50 to 16.00
Buffalo	15.50 to 16.00
Chicago	16.80 to 17.35
Cleveland	16.00 to 16.50
Eastern Pennsylvania	21.00 to 22.00
Pittsburgh	18.00 to 18.50
St. Louis	18.25 to 18.75

SHAFTING

Boston (shipping point)	14.00 to 14.50
Chicago	16.80 to 17.35
Eastern Pennsylvania	17.50 to 18.00
New York (dealers)	14.00 to 14.50
St. Louis	16.00 to 16.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	12.00 to 13.00
Boston (consumers)	17.00 to 17.50
Buffalo, iron	13.25 to 13.75
Buffalo, steel	15.50 to 16.00
Chicago, iron	13.00 to 13.50
Chicago, rolled steel	14.00 to 14.50
Cincinnati	12.75 to 13.25
Eastern Pennsylvania	16.00 to 16.50
New York iron (dealers)	12.00
Pittsburgh, iron	14.00 to 14.50
Pittsburgh, steel	15.00 to 15.50
St. Louis, iron	12.00 to 12.50
St. Louis, steel	13.00 to 13.25

NO. 1 CAST SCRAP

Birmingham, cupola	14.00 to 15.00
Boston	15.50 to 16.00
Buffalo	15.00 to 15.50
Chicago, No. 1 machinery	15.70 to 16.25
Chicago, No. 1 railroad	14.00 to 14.55
Chicago No. 1 agricultural	14.00 to14.55
Cincinnati No. 1 machinery cupola (net tons dealers)	14.25 to 14.75
Cleveland, cupola	16.50 to 17.00
Detroit (net tons)	13.00 to 13.50
Eastern Pennsylvania (cupola)	16.50 to 17.00
New York, cupola (dealers)	13.50 to 14.00
Pittsburgh, cupola	14.50 to 15.00
San Francisco, delivered	20.00 to 21.00
Seattle	16.00
St. Louis, railroad	13.50 to 14.00
St. Louis, agricultural	13.50 to 14.00
St. Louis, machinery	13.50 to 14.00
Valleys	16.50 to 17.00

HEAVY CAST

Boston	15.00 to 15.50
Buffalo (breakable)	13.00 to 13.50
Cleveland	12.50 to 12.75
Detroit (automobile) (net tons)	17.00 to 17.50
Eastern Pennsylvania	16.00
New York (dealers)	11.75 to 12.00
Pittsburgh	13.50 to 13.75

MALLEABLE

Boston, railroad	14.50 to 15.00
Buffalo	14.75 to 15.25
Chicago, agricultural	12.25 to 12.75
Chicago, railroad	13.00 to 13.50
Cincinnati, railroad (dealers)	12.00 to 12.50
Cincinnati, agricultural (dealers)	11.00 to 11.50
Cleveland, agricultural	15.00 to 15.50
Cleveland, railroad	15.50 to 16.00
Detroit, auto	14.50 to 15.00
Pittsburgh, railroad	14.00 to 14.50
St. Louis, agricultural	11.50 to 12.00
St. Louis, railroad	11.75 to 12.25

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.00 to 14.00
Boston (dealers)	10.50 to 11.00
Buffalo	16.00 to 16.50
Chicago	14.00 to 14.50
Eastern Pennsylvania	16.00
New York	11.00 to 12.00
Pittsburgh district	16.50 to 17.00
St. Louis	13.75 to 14.25

LOCOMOTIVE TIRES

Chicago, No. 1	14.00 to 14.50
Chicago, cut	14.00 to 14.50
St. Louis, No. 1	13.00 to 13.50

LOW PHOSPHORUS PUNCHINGS

Chicago	13.00 to 13.50
Pittsburgh	16.25 to 16.75

Scrap

Price Decline Continues and Level Is Almost Record Low—Sales Mostly Small

IRON and steel scrap continue to decline in price and demand With prices at the present level the downward movement necessarily is slow and slight. Buying is confined to small lots and immediate delivery. Dealers have no confidence in the market and are not selling ahead. Speculative buying is almost unknown. Prices are largely nominal.

Chicago, Nov. 8.—Increased scrap supplies and a moderate melt tend to depress iron and steel scrap prices further. Opinions differ considerably among dealers as to the market value of heavy melting steel in the absence of recent consumer activity. Some dealers are obtaining melting steel at low prices but most of this grade offered by railroads has been sold recently at $12, and slightly more. Most of the transactions are in a range of $11.50 to $12. Heavy supplies of rerolling rails are available and the price has sagged. Some sales have been made as low as $14, gross, delivered. Cast borings are also off and most dealers quote $9.50 to $10, a decline of 50 cents.

Boston, Nov. 8.—A reduction of 50 cents a ton has been made on various lines of iron and steel scrap. Yard wrought, mixed borings and turnings, rails for rerolling, railroad malleable, machinery and textile cast have shown this decline.

New York, Nov. 8.—Although two or three fair tonnages have been placed by mills recently, consuming demand for scrap continues dull, with prices showing little strength. In fact, on No. 1 yard steel, $6.75, New York, is about the maximum and on stove plate $8.25 to $8.75, New York, prevails, a reduction in the inside figure. One of the larger tonnages to have been placed of late involves about 6000 tons of yard steel for Pottsville, Pa. A consumer at Harrisburg is offering to pay $10, delivered, on skeleton steel and turnings, but is understood to be finding few takers.

Philadelphia, Nov. 8.—Four eastern steel mills have bought a total of about 20,000 tons of No. 1 heavy melting steel, at $14, delivered. Dealers continue to pay $13.50, delivered, for this grade. Some No. 2 melting steel has been bought at $11.50, delivered. Grate bars and stove plate have moved at $12.50 to $13, delivered, which is substantially 50 cents a ton lower. Bundled sheets have been sold at $10.50 to $11, also a reduction. A large consumer has paid $16 delivered for chemical borings. Steel axles have been sold at $21 to $22, and iron axles at $29 to $30.

Buffalo, Nov. 8.—Sale of a tonnage of No. 1 heavy melting steel to a Buffalo consumer at about $14.50 is the current development in the scrap market. The tonnage is for shipment in the next 60 days.

Cleveland, Nov. 8.—A Cleveland steelmaker has issued releases on some No. 1 and No. 2 heavy melting steel due it. Inventory-taking has cut sharply into the production of scrap by the automotive industry but in the present light state of demand this has no market significance. Northern Ohio steel interests continue to look for heavy buying of material by the Ford Motor Co. and the scrap trade expects to share in the revival, but as yet Ford orders have been scattering. Iron and steel scrap prices are weak and unchanged.

Detroit, Nov. 8.—Weakness continues in iron and steel scrap. Demand is limited and the number of consumers who are out of the market is increasing. While rejections of a few shipments are reported, shipments under old orders are accepted for the most part.

Cincinnati, Nov. 8.—Iron and steel scrap continues dull, a further reduction in price of various items having been made. Heavy melting steel is reduced 75 cents to $11 to $11.50.

St. Louis. Nov. 8.—Interest in iron and steel scrap is at a minimum and the same is true of prices. Consumers are purchasing only small lots to use immediately, and the total volume is small. Dealers' orders are close to the vanishing point, and there is little disposition to speculate or invest, despite unusually cheap prices.

Birmingham, Ala., Nov. 8.—No recovery in iron and steel scrap is anticipated the last two months of the year. Trade is slow and quotations are weak. Heavy melting steel is held at $10.75, delivered. Melt of this product is holding a steady pace.

Pittsburgh, Nov. 8.—Scrap continues to drag. Consumer interest is nearly absent. Consumers feel that the market will go even lower and are not placing orders. Dealers believe, however, that the market has scraped bottom but have not enough faith to cause them to put away stock for future sale. A nearby mill paid $14.50 for a limited tonnage of heavy melting steel but later had some distress tonnage offered to it at $14, which it refused.

Sheets

Ford Expected to Release Large Tonnage This Week—Black and Galvanized Prices Easier

WHILE sheet orders are more numerous, the tonnage is small, and production is at a slower rate this week. Ford Motor Co. is expected to release orders for sheets for 100,000 cars this week. Black sheets are easier, the minimum apparently being 2.75c, base, Pittsburgh. Galvanized sheets also are subject to concession, 3.65c being quoted by some makers.

SHEET PRICES, PAGE 1182

Pittsburgh, Nov. 8.—Numerically, sheet orders are increasing although not much expansion in tonnage is noted, because large orders are withheld. Most of the increase is attributed to greater buying of sheets by automobile manufacturers and parts makers. They are commencing to order farther ahead. Competition is keen. With some makers, galvanized sheets are firmer than black. They will not go below 3.75c on the former but will go to 2.80c on black. Other galvanizers, however, are taking business at 3.65c. In meeting strip competition, makers of blue annealed sheets, No. 11 gage and heavier, go to 2.10c. A great deal of business still is being done at 2.15c. Blue annealed buyers are becoming more cautious about placing orders, since some shops have taken orders for strip steel up to 48 inches wide, and the widest made so far has been 39 inches. The Ford Motor Co. still withholds orders for major production, but is expediting deliveries of unfilled portions of orders on file with sheetmakers for long ternes and other grades. Miscellaneous sheet buying continues fair for the agricultural implement makers, stove and range manufacturers, the metal lathe people, and various other consuming lines. Jobbers' orders are scarce. Operations average about 60 per cent.

New York, Nov. 8.—Sheet market is quiet. Demand has not improved. Prices are unchanged, 2.80c to 2.90c, base, Pittsburgh for black; 3.65c to 3.75c for galvanized, and 2.10c to 2.15c for blue annealed.

Youngstown, O., Nov. 8.—Independent sheetmakers continue to slow down operations. This week they are at 56 per cent, against 75 per cent last week. Quotations with most district mills are unchanged, the bulk of the tonnage moving now on a range of 2.85c to 2.90c, Pittsburgh, for common black. Autobody makers

ask 4.15c, Pittsburgh. Blue annealed is 2.10c to 2.15c, and galvanized 3.70c to 3.75c.

What with important northern Ohio and Indiana and southern Michigan automotive interests plunging into an unusually early inventory period this month, and at least one local mill planning to do likewise soon, new sheet business is reduced to the minimum. The Ford Motor Co. now is producing 50 to 60 new model cars daily and is expected to be a large sheet buyer shortly.

Chicago, Nov. 8.—Sheet buying in the Chicago district is fair, but no tendency is seen to buy ahead, and production schedules are difficult to arrange. Orders are barely a week ahead of rolling schedules. Mill prices for No. 24 black and galvanized sheets are holding at 3.00c and 3.85c, respectively. No. 10 blue annealed is 2.25c, mills, a reduction of $1 a ton from recent levels.

Cleveland, Nov. 8.—Weakness in sheet prices continues unmeasurable. Although 2.85c, Pittsburgh, is the open price for carload black sheet business, 2.75c is more common for contract tonnages and competition among some makers does not stop at that quotation. Blue annealed sheets, becoming more openly quoted at 2.10c, are being forced to compete with plate and continuous sheet mills with the result that 2.00c has been done rather frequently. One or two mills have not changed from 2.25c. Galvanized is 3.75c, Pittsburgh, with 3.75c, valley, also quoted. Autobody continues 4.15c, Pittsburgh, here for the little business being done, despite lower quotations in other districts.

Detroit, Nov. 8.—Ford Motor Co. is expected daily to release sheets for 100,000 cars and the price is awaited with interest. Galvanized is being sold at 3.65c, Pittsburgh, black at 2.80c and blue annealed at 2.10c, although less has been done on both black and blue. Some users of sheets are seeking coverage for the first quarter but sellers claim to be unwilling to commit themselves beyond December. The Ford purchase is expected to enliven the market.

Philadelphia, Nov. 8.—Sheet demand is spotty, and the volume generally is only fair. The usual prices are 3.65c, Pittsburgh, for galvanized; 2.80c to 2.90c, for black and 2.10c to 2.15c for blue annealed.

Sheet Output in October Gains; Sales Drop

Pittsburgh, Nov. 8.—Sheet production and shipments increased in October over September, while sales decreased, according to preliminary figures from the National Association of Sheet and Tin Plate Manufacturers. October production amounted to approximately 245,000 tons, an increase of 24.081 tons over September, while shipments in October totaled 244,000 tons, a gain of 13,557 tons. Sales amounting to 232,000 tons in October were 26,427 tons less than in September. Unfilled tonnage at the close of October was 338,000 tons, compared with 350,117 tons one month prior. The industry operated at 71 per cent of capacity in October.

A monthly comparison of sales, production and shipments follows:

	Sales	Production	Shipments
October	232,000	245,000	244,000
September	258,427	220,919	230,443
August	177,647	266,645	266,713
July	230,715	237,243	252,034
June	224,321	300,706	281,395
May	212,337	309,360	302,759
April	292,965	316,100	300,858
March	345,900	359,340	338,436
February	241,951	282,171	261,412
January, 1927	261,357	256,856	239,019
December	240,862	238,345	219,498
November	185,235	278,455	262,797
October	212,029	314,598	301,474

Shadbolt & Boyd Co., Milwaukee, formerly Shadbolt & Boyd Iron Co., has increased its capital from $405,000 to $750,000.

Tin Plate

Some Mills Rolling in 1928 Anticipations—Current Market Dull

TIN PLATE PRICES, PAGE 1182

Pittsburgh, Nov. 8.—While this is the dullest season of the year in tin plate, production keeps up to 60 or 65 per cent, chiefly because some sheetmakers are going ahead with rollings on anticipated needs for 1928 for canmakers, at prices to be established later. Several inquiries are out for January and February delivery, but makers are not yet quoting. They probably will be able to do so on or before Nov. 15. Prices from $5.30 to $5.40 still prevail, against the officially quoted but nominal market of $5.50.

Pipe

Line Pipe Throws Heavy Tonnage to Mill Books, Week's Awards Exceeding 150,000 Tons

AWARDING of contracts for the Amarillo, Tex.-Denver pipe line of 95,000 to 100,000 tons and the Roxana Petroleum Corp. line of 50,000 tons, made the past week the heaviest in point of tonnage received by mills in recent years. Current operations range from 50 to 55 per cent. Cast pipe is unusually active with two awards totaling 11,880 tons, and inquiries at New York exceeding 40,000 tons.

PIPE PRICES, PAGE 1182 AND 1222

Pittsburgh, Nov. 8.—National Tube Co. has been awarded 95,000 to 100,000 tons of 20 and 22-inch pipe for a gas line from Amarillo, Tex., to Denver for Standard Oil Co. of New Jersey. This order is believed to be the largest gas line ever placed; it is valued at over $10,000,000 and freight alone will exceed $1,500,000. Part of the order, which will be filled from the Gary, Ind., McKeesport, Pa., and Lorain, O., mills, has been entered.

Youngstown Sheet & Tube Co. is reported to have booked over 50,000 tons of 6, 8 and 10-inch pipe for a line for Roxana Petroleum Corp. More than 50,000 tons in western pipe lines still is pending, not including Transcontinental Oil Co.'s proposed 425-mile 10-inch trunk line from Pecos county, Texas, to the Houston, Te ., ship canal. Miscellaneous pipe business is meager. Operating rates of 55 per cent will be stimulated by these large orders. Jobbers are not buying for their stocks, which are far below normal.

New York, Nov. 8.—Substantial demand for cast pipe continues, with fully 40,000 to 45,000 tons actively pending and several thousand tons placed. Most of the inquiry is from private companies. Prices are being strengthened sentimentally but no material change is noted.

Boston, Nov. 8.—The only contract awarded in the district cast iron pipe market this week was for 4000 tons 6 to 14-inch pipe for Marshfield, Mass., to United States Cast Iron Pipe & Foundry Co. Private business continues in good volume. The tendency to easier prices on larger sizes has disappeared. Reports are received that Alabama interests have submitted bids on some jobs in this section recently.

Chicago, Nov. 8.—United States Cast Iron Pipe & Foundry Co. has been awarded the entire order of 5880 tons of 30 to 54-inch pipe for Chicago at its bid of $39.90, delivered. This shows some strengthening, as the Birmingham quotation on this bid was $31.70. Contract business is coming out in good volume and is expected to continue at a good rate well into the winter. A number of Chicago suburbs have been ordering their tonnages late in the year for the following spring delivery. Some contract business has gone as low as $27 recently, but a tendency is shown toward stronger prices as producers' books are in better shape. Six inch to 24-inch is $35.20 to $38.20, delivered Chicago.

Birmingham, Ala., Nov. 8.—Cast iron pressure pipe lettings are not numerous and total tonnage being sold continues light. Quotations continue at $29 to $30 for 6-inch and over sizes with concessions few. Operations in the district are 75 to 80 per cent. Soil pipe trade is slow

and plenty of stock is on yards. Output doubtless will be curtailed.

CONTRACTS PLACED

6000 tons, Brooklyn Union Gas Co., Brooklyn, placed with R. D. Wood & Co.

5880 tons, 30 to 54-inch pipe for Chicago, to United States Cast Iron Pipe & Foundry Co., at $39.90, delivered.

4000 tons, 6 to 14-inch pipe for Marshfield, Mass., awarded to United States Cast Iron Pipe & Foundry Co.

2300 tons, 36-inch pipe, Albany, N. Y., to E. Nicoll & Co., for French pipe.

1500 tons, 6 to 14-inch, water pipe, with option for 2500 additional tons within eight months, for Marshfield, Mass., placed with United States Cast Iron Pipe & Foundry Co.

800 tons, 16 to 30-inch, class A pipe, for sewage development near Atlantic City, N. J., to United States Cast Iron Pipe & Foundry Co.

628 tons, 6 and 16-inch class C, improvement to El Cajon street, San Diego, Calif., to Bert Noble.

450 tons, 18-inch, Greater Vancouver water district, Vancouver, B. C., to Leith, Murray & Co. Ltd.

222 tons, 4 to 30-inch class B, improvement to Ventura Heights, Ventura, Calif., to United Concrete Pipe & Construction Co.

109 tons, 4-inch class B for United States Indian service, department of interior, Fort Duquesne, Utah, to Water Works Equipment Co.

100 tons, 4 and 6-inch class B, San Diego; improvement to Rolando Park units No. 4 and 5, to George R. Daley.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

82,000 feet 6 to 12-inch class H or equivalent pipe for Melbourne, Fla.; bids in Nov. 14 by W. K. Seitz, city manager.

15,000 tons, gas pipe, American Light & Traction Co., 120 Broadway, New York; bids asked; this is in addition to 15,000 tons of water pipe noted last week as pending and issued by another company.

4300 tons, 4 to 12-inch water pipe, for Long Island Lighting Co., New York, bids asked through E. L. Phillips & Co.

4163 tons, 6-inch class B, Los Angeles, Spec. W-833; Pacific States Cast Iron Pipe Co. low bidder.

3500 tons, 6 to 12-inch water pipe, principally 6 to 2-inch, for Community Service Co., New York; action expected at once.

1510 tons, 4 to 14-inch class B, Santa Clara, Calif.; bids to be taken soon.

1500 tons, estimated, 16 miles of water pipe for Bethlehem, N. Y.; general contractors' bids to be opened Nov. 17.

302 tons, 4 to 8-inch class B, Burbank, Calif.; bids in Nov. 8.

198 tons, 4 to 8-inch class C, San Diego, Calif., improvement Golf Drive; bids Nov. 21.

182 tons, 6 and 12-inch class B, Santa Barbara, Calif.; bids opened.

142 tons, 6-inch class B, Phoenix, Ariz.; bids opened.

Unstated tonnage, water pipe for state department of mental hygiene, for installation at Sonyea, N. Y.; bids open Nov. 30.

Plan Western Car Shops

Plans to build a self-contained system, including purchase of raw materials, and manufacture of equipment are revealed in the plans for unification submitted by the Great Northern and Northern Pacific railroads, now before the interstate commerce commission. The plan provides for facilities for building 40 locomotives per year and 2000 freight cars annually, at a cost of about $4,500,000.

Bars

Better Specifying Appears in All Markets—Automotive Activity Brings Buying

WHILE small lot buying continues to rule the market in soft steel bars, somewhat better specifications are being received as automobile makers increase their requirements. Forward buying containues to lag as deliveries are almost immediate. Prices are unchanged and resistance to present levels have not developed concessions.

BAR PRICES, PAGE 1182

Chicago, Nov. 8.—Piecemeal buying characterizes the bar products market, but bar demand in the past two weeks has been noticeably stronger. The month is starting off with an appreciable upturn in shipments of heavy finished steel, but this does not show well defined strength in delivery requirements. Manufacturing lines continue active consumers of small lots, with no indication of forward buying. Farm equipment demand is maintaining a steady level and road machinery builders are active, despite the passing of the road-building season for this year. A number of forgers in this district, especially those doing work for some of the new car models, are busy and are taking slightly heavier bar supplies. Production schedules of mills cannot be based upon steady forward demand because of the numerous small orders. Mills complain of higher operating costs.

Rail steel demand, particularly from agricultural sources, is fairly steady. Tendency of the market is toward firmness of 1.80c to 1.85c for rail steel bars, with weakness disappearing.

Soft steel bars are 1.85c, Chicago. Some resistance to this quotation is appearing, but buyers in the immediate market territory have been unsuccessful in bargaining for lower prices even when attractive tonnages of 500 to 1000 tons are offered.

Buffalo, Nov. 8.—Current price on bars is 2.015c, Buffalo, for the better classes of business. Steelworks operation in the district is a trifle higher than at the beginning of October. Open hearth operation ranges from 55 per cent in some of the smaller plants to as high as 80 to 85 per cent in some of the larger.

Pittsburgh, Nov. 8.—Greater specifying activity is enjoyed by merchant steel bar makers, and most of this business is from cold bar finishers. This improvement is traceable to a greater measure of buying on the part of the automotive and allied lines, and hot bar producers believe that this character of business will steadily increase. No quotations can be uncovered at less than 1.75c. Jobbers' purchases so far are indifferent, only sufficient being bought to maintain well-balanced stocks.

Youngstown, O., Nov. 8.—One inexplicable thing about the present state of trade is the paucity of orders for steel bars. New business is almost negligible, a condition unusual in this district. One important independent plant has only one bar mill active today, and the leading producer is operating at only one-half capacity. Bars are 1.75c, Pittsburgh.

Cleveland, Nov. 8.—Sellers of soft steel bars experience no particular dearth of orders but the amounts per order are extremely small. Automotive consumption is expected to pick up shortly, but nothing approaching normal demand is looked for before the first quarter. Local mills quote 1.75c, Cleveland. and other makers 1.75c, Pittsburgh.

Detroit, Nov. 8.—Small lots of bars have been placed quietly by the Ford Motor Co. It is understood this user has specified material for 10,000 cars. The new extras on hot rolled hexagons and octagons afford a slight reduction in price. November bookings are shaping up slightly under the October level. The usual quotation is 1.75c, Pittsburgh, with one producer quoting this level at Cleveland and taking fair business. Chicago mills do not appear to be holding to the full 1.85c, Chicago, price in western Michigan.

Hot-Rolled Extras Are on Lower Basis

New extras have been announced to apply on hot-rolled hexagons and octagons. Some producers apply these to material for all consumers and others only to shafting makers. A slight change has been made in the division of sizes. The range from ¾ to 3 1/16 inches has been divided. Sizes from ¾ to 1 5/16 inches carry one extra and from 1 5/16 to 3 1/16 inches, a different extra. Extras on sizes from ⅝-inch to 1⅛-inch are lowered from the preceding card. The new list is as follows:

1 5/16 to 3 1/16 inch	0.25c
¾ to 1 9/16 inch	0.125c
⅝ to 11/16 inch	0.20c
12 to 9/16 inch	0.35c
7/16 inch	0.60c
⅜ inch	0.90c
5/16 inch	1.20c
¼ inch	1.50c

Peru received three rock drills from the United States total export in August.

Structural Shapes

Awards at Seasonal Rate but Inquiries Generally Are Lighter—Work on Architects' Boards Heavy—Prices Change but Little

STRUCTURAL steel activity of the week included a normal awarding of contracts, but a slightly less promising outlook due to a decreased number of inquiries. Awards included 6000 tons for the Chesapeake & Ohio railroad bridge at Cincinnati. Inquiries were featured by the taking of bids on 11,000 tons for the Daily News building of Chicago. No award has been announced as yet on the 18,000 tons for the Cuyahoga bridge at Cleveland.

Plain material prices continue fairly steady with 1.75c, Pittsburgh, the quotation being stressed by mills, especially in the East where lower prices had been prevailing. Chicago district fabricators continue quoted 1.85c, Chicago, on plain material.

STRUCTURAL SHAPE PRICES, PAGE 1182

New York, Nov. 8.—Although considerable work is on architects' boards, structural tonnage is developing rather slowly. From the standpoint of actual inquiry, the past week has been one of the lightest in some time. A fair volume of business, however, has been placed.

Due largely to the placing of almost 62,000 tons for the Hudson river bridge, structural bookings in this district in October were among the heaviest ever recorded. Miscellaneous building construction, aside from bridges, subways, piers, etc., aggregated 29,845 tons in the metropolitan district, according to figures just issued by the New York Structural Steel Board of Trade. This compares with approximately 26,000 tons in September. Of the tonnage booked last month, member companies of the structural board closed on 17,952 tons and nonmember companies on 11,893 tons. In September, member companies booked approximately 18,000.

Fabricated material prices show little, if any, improvement over a month ago. According to some of the larger fabricators, prices are even easier. Plain material quotations are unchanged.

Boston, Nov. 8.—The structural market is about holding its own. Four contracts in the past few days require about 1000 tons. Architects have more work, however, indicating that the situation may develop more activity in the near future. The contract for 2000 tons for the Harvard university chemical unit was awarded to the New England Structural Co., which interest also closed for 230 tons for a woolen mill at Welden, Me.

Philadelphia, Nov. 8.—An increasing amount of plain structural material business is being done at 1.75c, base, Pittsburgh, and mills apparently are firm with this figure on new business. The greater portion of current tonnage continues against old protections and contracts originally taken at lower prices which usually are good until the end of the year.

Cleveland, Nov. 8.—Delay in awarding the 18,000 tons for the Cuyahoga viaduct of the Union Terminals project here is adding further slowness to the market. Of eight leading fabricators represented or located in the city, no one reports receiving a project in the past week requiring more than 75 tons. Inquiries of size were absent except for issuance of plans on John Hays school requiring about 1200 tons. Plain material prices hold at 1.75c, Pittsburgh, with specifications on large sections only fair.

Pittsburgh, Nov. 8.—Awards in structural shapes are far from numerous, particularly in this territory. A number of inquiries are before the trade but delays of various sorts are encountered. No concessions below 1.75c on plain material have been reported.

Buffalo, Nov. 8.—Largest structural mills in this district are being operated on double turn. Structural orders have been fairly numerous although no large tonnages have been placed during the past week.

Chicago, Nov. 8.—Small-lot structural steel business continues to come out in fair volume. Bookings of heavy tonnage business are scant. Prospective structural work continues promising. Among the active projects are the Daily News building. Chicago, 11,000 tons; the Medinah Athletic club building, several thousand tons; a 40-story building to house the Chicago Board of Trade, work to begin soon; and a 50-story building for State street and Wacker drive, Chicago. Two high schools also are to be erected in Oak Park, Ill., and a number of hotels and business blocks are being financed for the Chicago district. Fabricating shops have low stocks. Mills quote 1.85c on plain material.

Awards Compared

	Total
Awards this week	34,364
Awards last week	19,618
Awards two weeks ago	33,957
Awards this week in 1926	20,827
Average weekly awards, Oct.	41,640
Average weekly awards, 1927	36,216
Total awards to date, 1926	1,252,223
Total awards to date, 1927	1,627,869

CONTRACTS PLACED

8,995 tons, involved in following awards:

Stage house for Kingway theater, Long Island, N. Y., to George A. Just Co.

15-story apartment, 179 East Seventy-ninth street.

15-story commercial building, 125 West Forty-fifth street, New York, both to Harris Structural Steel Co.

4-story office, Hudson avenue, Brooklyn, N. Y.

Convent, Syossett, Long Island, N. Y., both to Taylor-Fichter Steel Construction Co.

20-story office and loft building, 204-10 East Forty-third street, New York.

7-story bank and office, Bay street, St. George, Staten Island, N. Y., both to Hay Foundry & Iron Works.

15-story apartment, 100th street and West End avenue, New York, to Paterson Bridge Works.

School, White Plains, N. Y., to McClintic-Marshal Co.

Plant addition for Congoleum Nairn Corp., Kearny, N. J.

Bank, Clifton, N. J.

Masonic temple, Plainfield, N. J., all going to Levering & Garrigues Co.

6000 tons, bridge approach for Chesapeake & Ohio railroad, Cincinnati, to Fort Pitt Bridge Works.

1700 tons, power plant at Buffalo, for General Electric Co., to Fort Pitt Bridge Works.

1700 tons, addition to Buffalo General Electric Co., Buffalo, to Fort Pitt Bridge Works.

1500 tons, building for American Druggists Fire Insurance Co., Cincinnati, to McClintic-Marshall Co.

1500 tons, highway bridge, Ocean City, N. J., to Phoenix Bridge Co.

1400 to 1500 tons, two ore bridges for Zenith Furnace Co., Duluth, to Industrial Brown Hoist Co.

1100 tons, apartment at Eighty-third street and West End avenue, New York, to Dreier Iron Works.

1000 tons, Brooklyn Law school, Pearl and Willoughby streets, Brooklyn, N. Y., to Levering & Garrigues Co.

950 tons, transmission towers, Southern California Edison Co., Los Angeles, to Pacific Coast Steel Co.

850 tons, civic auditorium, Seattle, to Wallace Bridge & Structural Steel Co.

600 tons, Methodist nurses home Indianapolis, to Insley Mfg. Co.

500 tons, boiler supports for State-Line Generating Co., Hammond, Ind., to Vierling Steel Works, in addition to tonnage previously placed.

500 tons, Union Trust Co. building, Providence, R. I., to McClintic-Marshall Co.

500 tons, Stanley theater, Hoboken, N. J., to Belmont Iron Works.

490 tons, power house, Hamilton, O., to Brown Steel Co.

475 tons, two bridges in Michigan for Michigan Central railroad, to American Bridge Co.

475 tons, crane runway, Pacific Coast Steel Co., Seattle, to Wallace Bridge & Structural Steel Co.

400 tons, miscellaneous bridgework for New York Central railroad, to unnamed fabricator.

350 tons, building for W. F. Hall Printing Co., Chicago, to A. Bolters Sons.

350 tons, unstated project, Toledo, O., to Donovan Wire & Iron Co.

300 tons, school, Niagara Falls, N. Y., to R. S. McMannus Steel Construction Co.

271 tons, grain elevator, Kelso, Wash., to Star Iron & Steel Co., as previously noted.

250 tons, miscellaneous work in Pittsburgh and nearby district, to Pittsburgh Bridge &

Iron Works.
230 tons, woolen mill at Welden, Me., awarded to New England Structural Co.
207 tons, Kimball Glass Co. building, Vineland, N. J., to Montgomery Structural Steel Co.
200 tons, Harvard university chemical unit, Cambridge, Mass., awarded to New England Structural Co.
200 tons, Bordens building, Forty-fifth street, New York, to unnamed fabricator.
200 tons, four buildings for state department of health, Albany, N. Y., awarded an unnamed fabricator.
175 tons, First National bank, Jeannette, Pa., to Pittsburgh-Des Moines Steel Co.
168 tons, miscellaneous repair jobs in Pittsburgh area, to Fort Pitt Bridge Works.
160 tons, bank of California, Tacoma, Wash., to Lidgerwood-Pacific Co.
130 tons, hotel, Piedmont avenue, Oakland, Calif., to Herrick Iron Works.
125 tons, building for Continental Ice Co., Proviso, Ill., to Wendnagel & Co.
113 tons, Teanaway river bridge, Olympia, Wash., to Wallace Bridge & Structural Steel Co.
100 tons, small jobs in Pittsburgh area, to W. N. Kratzer Co.
100 tons, paper mill at Attleboro, Mass., to Providence Iron & Steel Co.
Unstated tonnage, office building for Cellulose Corp., Cumberland, Md., to Pittsbugrh Bridge & Iron Works.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

12,000 tons, bridge, Longview, Wash.; approval by federal authorities expected.
7400 tons, 38-story hotel reported for Grand Central zone, New York; bids asked; this originally was understood to have been for Brooklyn.
3900 tons, Southern California Athletic and Country club, Los Angeles; plans prepared.
2100 tons, two bridges, Simpson Logging Co., Seattle; bids being received.
2000 tons, addition to Columbia-Presbyterian hospital, New York; Marc Eidlitz & Son Inc., general contractors.
1500 tons, New Jersey State highway viaduct, Newark, N. J.; bids asked.
1500 tons, apartment, Seventy-seventh street, New York; bids asked.
1300 to 1500 tons, lift bridge of Eagle avenue bridge, Union Terminal project, Cleveland; bids in Nov. 7.
1200 tons, approximate, John Hays senior high school, Cleveland; bids in Nov. 21.
1000 tons, approximately, 15-story Sugerman & Berger apartment, Ninety-seventh street and West End avenue, New York.
800 tons, Vincent Astor apartment, 540 East Eighty-sixth street, New York; George A. Fuller Co., general contractor.
700 tons, warehouse for International Harvester Co. at Topeka, Kans. steel bids soon.
600 tons, theater, Marion, O.; bids being taken.
600 tons, Lawrence hotel, Erie, Pa.; bids in.
600 tons, apartment for Dwight P. Robinson & Co. Inc., Sixty-first street, New York; bids asked.
475 tons, building, Iron City Electric Co., Pittsburgh; bids being compiled.
400 tons, court house, Suffolk county, Long Island, N. Y.
300 tons, Warner bridge, Victoria, B. C.; bids in.
250 tons, plant building, for International Combustion Co., Newark, N. J.
125 tons, Guyan Creamery Co., Huntington, W. Va.
100 tons, Pennsylvania railroad bridge at Fernwood, Pa.; Phoenix Bridge Co. low bidder.
Unstated tonnage, building for Sisters of St. Zita, 142 West Fifteenth street, New York.
Unstated tonnage, Shubert theater, 243 West Forty-seventh street, New York; Herbert J. Krapp architect.
Unstated tonnage, union passenger depot and freight station, Cincinnati, for Cincinnati Union Terminals Co., contemplated.
Unstated tonnage, bridge over Mt. Hope Bay, between Bristol, Conn., and Providence, R. I.; Hope Bridge Co., Providence, R. I., plans accepted by war department.

Concrete Bars

Improvement Confined to a Few Centers—Chicago Activity on Decline

NO FURTHER note of slowing demand was heard in the concrete reinforcing bar market of the week with the exception of Chicago, which reports further drop in new inquiries. Activity at Boston was the greatest for more than a month. Several large bridge projects are pending in the East. Leading awards of the week was the 1000-ton sewer letting at Chicago.

REINFORCING BAR PRICES, PAGE 1182

New York, Nov. 8.—While concrete reinforcing bar lettings have been small, several thousand tons are involved in current projects slated to be closed shortly. The most notable pending jobs include 1200 tons for the bridge across the James river in Virginia, 1800 tons for decks for the two Staten Island bridges and several thousand tons for the United States appraisers' store building in New York. Reinforcing bars are 1.85c, base, Pittsburgh, for mill shipment, 2.80c, base, delivered locally, on New York warehouse, material and 2.20c, base, Youngstown, O., on Youngstown warehouse stocks.

Boston, Nov. 8.—Closing of several concrete bar jobs that had been pending in this market developed a total of nearly 1200 tons. This was one of the best buying spurts in the past month and stimulated interest. In addition there continued the usual demand for small jobs. The award for the Cadillac Motor Car Co. building, 770 tons, was to Truceon Steel Co.

Pittsburgh, Nov. 8.—A large number of concrete bar jobs are up for bids or are projected in this or nearby sections, but awards for the most part are confined to the 5 to 15-ton requirement. A few larger jobs are up for letting this week, including the Keystone Athletic club. Much work is on the architects' boards and will come along soon. One is the Sewickley Valley hospital, taking between 200 and 300 tons. The open market price is unchanged at 1.75c.

Buffalo, Nov. 8.—Considerable reinforcing bar inquiry is pending and likely to be covered soon. Orders of the past week include one of 500 tons and several of smaller size. Reinforcing bar production will be heavier than usual this month if the outstanding inquiry in covered, as is almost certain.

Cleveland, Nov. 8.—Small lots make the local concrete bar market. Although an occasional inquiry or award may involve an attractive amount, most current orders are for 5 to 25 tons each. New billet bar prices are unchanged at 1.75c, Cleveland or Pittsburgh mills. Rail steel is nominal at 1.65c to 1.75c, with no sales to test the strength of quotations. Bids are to be opened Nov. 9 on 700 tons for Union Terminal work.

Chicago, Nov. 8.—Fresh reinforcing bar business comes out less freely. A considerable number of projects are pending but these have been out for some time. October building permits in Chicago show a decrease of 8.28 per cent in value from September, but a gain of 123 in number. About 700 tons are on inquiry for a soap plant in Chicago, and 300 tons for the Lincoln-Belmont Y. M. C. A. Prices tend toward weakness. Billet bar dealers are seeking to maintain a minimum of 2.30c, but business is being taken under that figure.

Awards Compared

	Total
Awards this week	5,239
Awards last week	13,677
Awards two weeks ago	4,223
Awards this week in 1926	8,615
Average weekly awards, Oct,	4,602
Average weekly awards, 1927	5,619
Total awards to date, 1926	291,955
Total awards to date, 1927	252,499

CONTRACTS PLACED

1000 tons, billet steel, Crawford avenue intersecting sewer, Chicago, 500 tons to Barton Spider-Web System Inc., and 500 tons to Truscon Steel Co.
770 tons, Cadillac Motor Car Co. sales and service station, Commonwealth avenue, Boston, to Truscon Steel Co.
600 tons, Fox theater, San Francisco, to Gunn, Carle & Co.
500 tons, foundations for Buffalo General Electric Co., Buffalo, addition, to Kalman Steel Co.
400 tons, grain elevator, Kelso, Wash., to Pacific Coast Steel Co.
350 tons, rail steel, addition to Guyon's Paradise hall, Crawford avenue and Washington boulevard, Chicago, to Inland Steel Co.
330 tons, hotel, West Sixth street, Los Angeles, to unnamed fabricator.
300 tons, motor garage at Providence, R. I., awarded to J. C. Coleman & Sons Co., Boston.
225 tons, office building, 421 South Hill street, Los Angeles, to unnamed interest.
200 tons, Pennsylvania state road work, to Concrete Steel Co.
135 tons, billet steel, automobile supply building at Twenty-sixth street and Prairie avenue, Chicago, to Barton, Spider-Web System Inc.
125 tons, West Park auditorium, Chicago, to Concrete Engineering Co.
104 tons, Pollard Gulch bridge, Lamoine, Calif., to unnamed interest.
100 tons, Argonaut Realty Co. auto service station, Allston, Boston, awarded to Truscon Steel Co.

100 tons, Y. W. C. A. building, Atlantic City, N. J., to Kalman Steel Co.
100 tons, Sherwood physical education building, Milwaukee, to Concrete Engineering Co.
100 tons, Bank of California, Tacoma, Wash., to Pacific Coast Steel Co.
100 tons, approximate, mesh and bars, for Rainbow hospital, Cleveland, to Paterson-Leitch Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

1400 tons, sewage disposal plant, Dayton, O.; E. H. Latham Co., Columbus, O., general contractor. Steel award expected this week.
1000 to 1400 tons, Butler building, San Francisco; bids opened.
1000 tons, Elks hotel, Seattle; bids to be taken soon.
700 tons, auditorium, Seattle; bids opened.
700 tons, work for Union Terminals project, Cleveland; bids in Nov. 9.
700 tons, soap plant for James J. Kirk & Co., 1232 West North avenue, Chicago; Avery Brundage Co., contractor.
700 tons, Shedd aquarium, Grant park, Chicago.
500 tons, Diablo dam, Seattle.
397 tons, Los Angeles county flood control district, Los Angeles; bids in Nov. 7.
300 tons, Lincoln-Belmont Y. M. C. A. building, Chicago; R. C. Wieboldt Co., general contractor.
300 tons, bridge across Newark Bay, N. J., for Pennsylvania and Lehigh Valley railroads. Henry Steers Inc. is contractor.
210 tons, Fort Lewis project, Seattle.
200 to 300 tons, Sewickley Valley hospital, Fittsburgh; bids about to be asked.
200 tons, coagulating house for municipal water works, St. Louis, general contract to Murch Bros. Contracting Co.
200 to 300 tons, John Hays senior high school, Cleveland; bids in Nov. 21.
150 tons, bridge over Mill creek, Salem, Oreg.; bids in Nov. 7.
150 tons, viaduct, Bellingham, Wash.
150 tons, physical education building, State Normal school, Keyser, W. Va.; bids close Nov. 30.
150 tons, Cazenovia Creek bridge foundations, Buffalo; bids to be taken soon by the city of Buffalo.
100 tons, Lever Bros. plant addition, Cambridge, Mass.
100 tons, pans and bar reinforcement, Holy Rosary church, Pittsburgh; bids being taken.
100 tons, hospitals at Kittanning, Warren and Johnstown, Pa.; bids about to be asked.
100 tons, reinforcing bars and wire mesh, Lawrence hotel, Erie, Pa.; bids being taken.
100 tons, Mayflower hotel, Webster Hall addition, Pittsburgh; bids to be asked shortly.
100 tons, Standard Auto garage, Greensburg, Pa.; bids being compiled.
100 tons, Lawrence county courthouse, New Castle, Pa.; bids about to be asked.
100 tons, Langley high school addition, Pittsburgh; North Braddock, Pa. high school; and Boys' Training school, Morganza, Pa.; bids being taken.
100 tons, postoffice and courthouse at Williamson, W. Va., James J. Wetmore, architect; bids close Dec. 8.
100 tons, infirmary building, State college, Pa.; bids being taken.
100 tons, Pittsburgh & Lake Erie Railroad Y. M. C. A., Newell, Pa.; bids being taken.
100 tons, building for Pittsburgh Dry Goods Co., Pittsburgh; bids about to be asked.
100 tons, building for Abraham Goldberg, Penn avenue, Pittsburgh; bids about to be asked.
100 tons, building for Martin Fleischman Co. Penn avenue, Pittsburgh; bids about to be asked.
Tonnage unstated, buildings for Catholic Societies of Erie, including seminary, dormitory, locker rooms, gymnasium, etc.; bids about to be asked.
Unstated tonnage, warehouse and garage for Eleto Co., New York.
Unstated tonnage, concrete highway, Route 18, between Englewood Cliffs and Alpine, N. J., general contract to E. S. Groves, Camden, N. J.

Exports of horseshoes to Canada from the United States in August totaled 56,381 pounds.

Rails, Cars

Inquiries for 1928 Rail Programs in Lull at Present—More Car Business Expected

INQUIRIES in the Chicago district for 150,000 tons of rails exclusive of the New York Central requirements of about an equal amount indicate good buying within the near future, but awards of the week totaled 10,000 to 15,000 tons in small lots. Flood repair work is expected to result in heavier demand in New England. October freight car awards of 561 made one of the poorest months.

RAILROAD TRACK AND MATERIAL PRICES, PAGE 1182

New York, Nov. 8.—While the inquiry for 1850 freight cars contemplated for the Chicago & North Western is one of the largest in some time, the car market continues far from active. The past month in many respects was one of the poorest in history of the trade, for not only was the business small, orders totaling 561 cars, but partially noncompetitive. Following is a comparative statement:

Total 10 mos.	44,284
October	561
September	357
August	856
July	1,970
June	7,115
May	5,100
April	3,350
March	4,630
February	5,960
January, 1927	14,385
December	3,990
November	3,925
October	2,840
Total, 10 mos.	47,660

Pittsburgh, Nov. 8.—Light rail orders have shown a further increase for a number of sellers in this market. One received orders yesterday for three carloads from Huntington, W. Va., territory, and other buyers in other sections of West Virginia, particularly the South, have sent in a fair number of single-carload orders. This business has been at $36, base.

Spikes, tie plates, and other track fastenings are being bought only in small lots. While some makers are attempting to maintain a 2.80c price in spikes, 2.75c lately has appeared in one or two directions, but 2.25c is unchanged on tie plates.

Boston, Mass., Nov. 8.—Considerable significance was given to the order of the Boston & Maine railroad for rails in the latter part of the past week. Boston & Maine actually has agreed to a contract, which is about to be signed, for 10.000 tons of rails with the Bethlehem Steel Co. The Boston & Maine bought German rails two years ago. Boston & Maine has suffered heavily in Vermont and several parts of New Hampshire, as a result of the extensive flood area, and there is good prospect that the delivery of the balance of the order now agreed upon will be ordered for immediate shipment to replace the washouts and other damage that has taken place. It is expected that not only the 10,000 tons will be required for immediate use, but that additional heavy demands will come immediately. Boston & Albany recently placed an order for 2500 tie plates with the Bethlehem Steel Co.

Chicago, Nov. 8.—Exclusive of the New York Central inquiry, approximately 150,000 tons of standard steel rails for 1928 track laying will be out in the form of tentative or formal inquiries shortly, it is estimated. Rail mill operations in the district have not been increased, but track fastenings output will be speeded up within the next two weeks. About 10,000 to 15,000 tons of rails in several small orders were placed by roads with terminals in Chicago during the week. Inquiry for track fastenings now totals 15,000 tons, but only miscellaneous lots have been placed recently.

Distribution of the Erie railroad's rails is 24,000 tons to Carnegie Steel Co., 13,000 tons to Illinois Steel Co., 8000 tons to Bethlehem Steel Co. and 2000 tons to Inland Steel Co.

Prospects of a start in some car building activity are in sight following a report that the Chicago & North Western is ready to ask bids soon for 1350 miscellaneous freight cars in addition to its present inquiry for 500 hopper car bodies, making a total order of 1850 cars. Fruit Growers Express is inquiry for 600 steel underframes.

CAR ORDERS PLACED

Chicago, Milwaukee & St. Paul, ten baggage cars, to American Car & Foundry Co.
Wheeling Steel Corp., 10 dump cars, to Clark Car Co.
Winston-Salem & South Bound, six cabooses, to unnamed builder.

CAR ORDERS PENDING

New Inquiry and Developments on Projects Previously Reported

Chicago & North Westren, 1850 freight cars, included are 750 hoppers, 500 flat cars, 100 mill type gondolas, and 500 hopper car bodies; contemplated.
National Railways in Mexico, 20 tank cars.
Fruit Growers Express, 600 steel underframes.

LOCOMOTIVE ORDERS PENDING

Georgia-Northern, one locomotive; bids asked.
Pennsylvania, 12 gas-electric locomotives.

Wire

Nail Prices Develop Weakness but Wire Holds Firmly—Production at Low Mark

COMPETITION in nails has resulted in $2.50 being quoted on much of present business. The wire price remains firm at 2.40c, Pittsburgh. Efforts to instill confidence in buyers has not resulted in much success. Production remains at about 50 per cent of capacity. Conditions show little change from recent weeks, in demand or production.

WIRE PRICES, PAGE 1182

Pittsburgh, Nov. 8.—Recent efforts to instill a measure of confidence among buyers of wire and wire products by representatives of local wire mills has met with only indifferent success. Some small orders have resulted but the price situation is anything but satisfactory. On nails $2.50 has become increasingly common. Plain wire, however, is held firmly at 2.40c, base. Operations are not above 50 per cent.

Worcester, Mass., Nov. 8.—A gradual increase in wire buying is noted especially for small bright steel wire and specialties. Prices are firm at 2.55c, Worcester. An automobile manufacturer is inquiring for some specialty material. Utilities are good buyers.

Buffalo, Nov. 8.—After one of the best years in history for the production of welded mesh, Buffalo wire works are now reducing operations. This curtailment has reduced wire works operation slightly, to around 65 per cent, but rod production is somewhat above that figure, due to shipments for use outside Buffalo district.

Cleveland, Nov. 8.—Competition from mills outside this district is tending to break the stability that has marked plain wire prices. Indiana mills are reported to have shipped their products into Ohio at prices figuring back to $1 or $2 below the base of 2.40c, Cleveland. In the Canton-Akron-Massillon district wire is reported to have been sold on a 2.30c, Pittsburgh base. For Cleveland delivery 2.40c remains a steady market. Nails hold at $2.50 to $2.55, Cleveland, per 100-pound keg.

Detroit, Nov. 8.—Competition between Pittsburgh district and northern Indiana makers of wire producers results in a wide variation in prices. Plain bright nails hold fairly well at $2.50, Pittsburgh, but coated nails show a wide range. Automobile foundries are taking more annealed wire. Some sellers of wire producers have experienced better demand, which for them is at the July level.

Chicago, Nov. 8.—Some weakness has appeared in wire nails, but in general $2.60, Chicago, is quoted. Buying is piecemeal and operations continue at about 55 per cent. Manufacturers' demand is spotty, some lines showing fair activity. A shade of improvement is discernible in jobber activity. Woven fencing business continues fairly active. Bright plain wire is steady at 2.45c, Chicago or western mill.

Bolts, Nuts, Rivets

Piecemeal Buying Prevents Production Going Higher

NUT AND BOLT PRICES, PAGE 1182

Pittsburgh, Nov. 8.—Nut, bolt and rivetmaking does not reach much above 50 per cent. Orders are piecemeal. Jobbers' buying is limited. Prices are unchanged at 70 off on nuts and bolts. Rivets are selling in the open market at 3.00c, but shipments against contracts are billed at 2.75c.

Philadelphia, Nov. 8.—Demand for bolts and nuts is quiet but prices are firm on the basis of 70 off for jobbers and large consumers, with 60 off for small buyers. Rivets reflect small demand at 2.75c, Pittsburgh, the usual price, with 3.00c asked in most cases on casual inquiry.

Cleveland, Nov. 8.—Operations of bolt and nut manufacturers here are fairly steady between 55 and 60 per cent. Specifications are in fair volume, with automotive interests slightly more active in buying. Rivet sales lag, the month starting disappointingly.

Chicago, Nov. 8.—Shipments of bolts, nuts and rivets to farm implement manufacturers continue steady, and a slight increase is noted in demand from railroads. Requirements from other sources are light. Prices show stability but some resistance has been encountered in large structural rivets, quoted at 2.85c in carload lots, Chicago, for spot.

Cold Finished Steel

Automotive Demand Increasing Requirements of Finishers

COLD FINISHED PRICES, PAGE 1182

Pittsburgh, Nov. 8.—More automotive business is developing for cold bar finishers. Some are now upon a 60 per cent basis, particularly in alloy departments. The general average is 55 per cent. Large individual tonnages are not coming through but some smaller ones are being increased slightly. Farm implement makers and other users in diversified lines are buying steadily as needed. The openly quoted market is unchanged at 2.20c, with 2.10c the preferential figure when tonnage warrants.

Strip Steel

Automotive Users Give Most of Increased Tonnage

STRIP PRICES, PAGE 1182

Pittsburgh, Nov. 8.—Additional tonnages have come to strip steel makers here from automotive users. Miscellaneous consumers continue to take small lots as needed but automotive customers are increasing their specifications measurably. Some of this business was shaded $2 per ton, attractive lots of cold strips going at 2.90c, against the usual 3.00c for three tons or more of a size. When less than three tons of a size is ordered, however, the usual practice is to obtain the full 3.25c. On hot strips 2.00c to 2.10c is quoted, depending upon the tonnage, and on hoops and bands 2.20c to 2.30c. While some strip makers are on a 65 per cent operating basis, others are still down to 50 per cent.

Cleveland, Nov. 8.—Scarcity of buying and pressure to obtain business is weakening further the strip market. Whereas a week or ten days ago several sellers were maintaining firmly the levels of 2.10c, Pittsburgh, for 6 to 12-inch widths and 2.30c for under 6-inch, these makers have weakened and are meeting competition to an extent. The market here is 2.00c for 6 to 12-inch and 2.15c to 2.20c on less than 6-inch. Lower prices are being done, 1.90c, Pittsburgh, being common on attractive tonnages of wide sizes. Expected releases from automotive parts manufacturers have not been received by mills represented here.

Detroit, Nov. 8.—Producers of strip expect the Ford Motor Co. to place 50,000 tons or more not later than early December. Hudson-Essex has covered its November needs. Dodge Bros. are variously reported to have bought heavily recently or to be about to buy. New business, on the whole, is light, in keeping with a generally-receding automotive production. Prices show considerable variation. The wide strip price is difficult to locate, being at least $3 off the 2.10c price in instances. Cold rolled and narrow strip are holding more closely to published levels.

The Manufacturers Association of Connecticut will hold its annual meeting at the plant of the New Departure Mfg. Co., Bristol, Conn., Nov. 28. Election of officers and an inspection trip through the plant will be features. John H. Trumbull, governor of the state of Connecticut and president of the Trumbull Electric Co., will act as toastmaster.

Nonferrous Metals

Buying Improves in All Lines but Copper Is Only Metal to Show Strength—Advance in Mill Product Prices Expected

Prices of the Week, Cents a Pound

		Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin—New Spot	Straits Tin—December	New York Lead	St. Louis Lead East	St. Louis Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
Nov.	2	13.32½	13.42½	13.00	56.92½	56.62½	6.25	6.00	5.75	24.80	10.87½	35.00
Nov.	3	13.37½	13.45	13.12½	57.50	57.12½	6.25	6.00	5.72½	24.80	10.87½	35.00
Nov.	4	13.37½	13.45	13.12½	57.30	56.87½	6.25	6.00	6.72½	24.80	10.87½	35.00
Nov.	7	13.42½	13.50	13.25	56.50	56.00	6.25	6.00	5.62½	24.80	10.87½	35.00
Nov.	8	Holiday in New York										

NEW YORK, Nov. 8.—Buying of nonferrous metals during the past week has been more active than in some time. A fair amount of business was done but only copper showed any strength. In this metal the strength was derived primarily from a great volume of export business. Zinc continued to fall despite a fair amount of business, and tin slipped off a little lower than it had been as soon as buying ceased, notwithstanding fair business on several days.

Mill products are moving along at a steady rate, all for early shipment. It is expected that as soon as copper is established at 13.50c, Connecticut, the products will be marked up ¼-cent, and it is the expectation of the market that copper will sell within a few days at that price. Today is a holiday in New York because of elections.

Copper—Copper has sold in the past few days at 13.37½c or ⅛-cent more than at the opening of the month. On Monday some sellers began to ask 13.50c, Connecticut, and metal was sold at 13.42½c, Connecticut, before the day was over. Midwestern prices ran from 13.50c to 13.75c. Domestic business has not been large but such as it has been, has been mostly for November-December shipment. Export business has been large, also mostly for rather early shipment. The price was marked up 10 points due to strength abroad to 13.70c c.i.f. European ports.

Zinc—Prime western zinc sold down from 5.80c East St. Louis, at the beginning of the month to 5.62½c. A fair amount of business was done for prompt to January shipment, but this buying failed to check the break, as the ore market continued weak. The overproduction situation has become apparent, and as the Joplin market, more than others, depends on weekly business, the price has gone down rapidly to $35. The differential between ore and metal, while narrow, has changed little in the past few months. Ore and metal are the lowest in several years.

Tin—Good buying has been done on several days, much of its running well into next spring. And yet confidence in the market seems to have disappeared entirely, as the price on Monday fell to the lowest in more than two years. The last monthly statistics were fairly strong but the action of the market seems to indicate that the trade does not have much faith in statistics as a whole because of several glaring shortcomings in tin figures. It is recognized that use is slack but output unchecked.

Lead—Buying has been moderate and prices have been unchanged though London influence has been toward easiness.

Aluminum—Little change has appeared since the cut in prices a week or two ago. The open market reports little business aside from some spot lots though the domestic producer reports improvement. Prices in the open market are easy on large lots, perhaps ½-cent under the domestic producer, but a real test will be necessary to prove the exact level of the market.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
Yellow brass (high)	18.25
Copper, hot rolled	22.00
Lead full sheets (cut ¼c more)	9.75
Zinc (100-pound base)	10.00
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	32.00
SEAMLESS TUBES	
Yellow brass (high)	23.12½
Copper	24.00
RODS	
Yellow brass (high, free turning)	16.00
Naval brass	18.75
WIRE	
Copper, small lots	15.00
Yellow brass (high)	18.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	8.75 to 9.00
Chicago	9.25 to 9.50
Cleveland	9.25 to 9.50
HEAVY YELLOW BRASS	
Chicago	6.75 to 7.00
Cleveland	7.00
ZINC	
New York	3.75 to 4.00
Cleveland	3.50
HEAVY COPPER AND WIRE	
New York	10.25 to 10.50
Boston	10.50 to 10.75
Chicago	10.00 to 10.50
Cleveland	10.75 to 11.00
RED BRASS BORINGS	
New York	8.00 to 8.25
YELLOW BRASS TUBING	
Cleveland	7.50 to 7.75
LIGHT COPPER	
New York	9.00 to 9.25
Chicago	9.25
Cleveland	9.50 to 9.75
LIGHT BRASS	
Boston	5.25 to 5.50
Chicago	6.25
Cleveland	5.25 to 5.50
ALUMINUM	
Clippings, Cleveland	18.50
Borings, Cleveland	9.50
Cast, Cleveland	13.50
Cast, Boston	13.00 to 13.50

Secondary Metals

Remelt aluminum No. 12	18.50
Brass ingot, 85-5-5-5	12.00

Coke By-Products

Declining Production Is Lending Strength to Prices

New York, Nov. 8.—Steadiness prevails in coal tar products, with curtailed operation at steel mills adding strength. Phenol is slightly easier, holding at 19.00c works, in tank car lots, with some orders reported as slightly less. Demand for pure and 90 per cent benzols continues at the somewhat improved rate of the past two or three weeks, and while buying of toluol is indirectly affected by the restricted operations in the automotive industry, it nevertheless is of good volume.

Sulphate of ammonia is steady at $2.30 to $2.35, delivered, for domestic account and $2.30 to $2.35, port, for export account, although the latter are largely nominal. Trading in naphthalene remains quiet, with prices unchanged although none too firm.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.23	
90 per cent benzol	0.23	
Toluol	0.35	
Solvent naphtha	0.35	
Commercial xylol	0.36	
Phenol	0.19 to 0.20	

Per Pound at Producers' Plants

Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½

Per 100 Pounds Delivered

Sulphate of ammonia	$2.30 to $2.35

Quicksilver Is Strong

New York, Nov. 8.—Quicksilver continues strong, about $128 to $129 a flask. Moderate buying is being done, and supplies are tightly held. The import cost, based on prices in Europe, is slightly above this level.

Warehouse

November Sales Rate Holding Comparable to That of October—Prices Steady During Week—Building Material Demand Lessens

DESPITE a falling off in building material demand due to colder weather in northern cities, improvement in manufacturing buying has maintained November warehouse sales on a par with those of October. Prices were unchanged during the week.

Cleveland warehouse sales generally are about on a par with those in October, although several jobbers report a slight drop. Prices hold steady for local delivery. Although competition with Pittsburgh jobbers continues keen in outside territory, the tendency to weakness in quotations in such districts is not as pronounced as 60 days ago.

Jobbing demand in the New York metropolitan district is being well sustained at last month's rate, which was better than that for September.

The keenest sort of competition continues in Boston warehouse business. In the quest for moving materials it is not uncommon for sellers to make concessions of $1 a ton on listed prices. This is done even on small lots.

Buffalo iron and steel warehouses report a continuation of business on about former scales with demand extending to the merchant lines generally more as the season's first cold weather has slowed up demand for materials for building and road construction.

Some Pittsburgh jobbers report that in number of orders they received more in October than in September, but tonnage was less. One large jobber, however, with a mill affiliation, notes an increase over September of 10 per cent in total tonnage moved in October. Jobbers here have made no change in cold finished bars, quoting 3.60c, base, on rounds and hexagons, and 4.10c, base, on flats and squares. In regard to quantity differentials, jobbers are charging as they have for three months past—$1 for less than 100-pounds of a size, 100 to 300 pounds, 75 cents; 300 to 500 pounds, 50 cents. Sheet orders are improving a trifle and prices are firmer.

Small quantity buying features demand for Detroit warehouse products. Tonnage moving is only fairly satisfactory and little improvement is looked for the rest of the year. Current demand continues diversified.

St. Louis distributors indicate October sales were below September or last October. Business is described as spotty, with certain departments making a relatively much better showing than others.

Shading of 2.50c, base, delivered locally, continues a factor in the Philadelphia warehouse market. Indications are that shading of 2.50c, applies to less than 3 per cent of current orders from a numerical standpoint but it seems that such shading is increasing. Otherwise prices are unchanged and business at Philadelphia is somewhat better.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Los Angeles	3.40c
New York	3.24c
Philadelphia	2.50c to 3.20c
Pittsburgh	2.85c to 2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.06c

IRON BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York	3.24c
Philadelphia	2.50c to 3.20c
St. Louis	3.15c
Tulsa	3.75c to 4.06c

REINFORCING BARS

Baltimore	2.80c to 3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.00c
Cleveland	2.20c
Detroit	3.00c
Ft. Worth	3.75c
*Los Angeles	3.05c
**Los Angeles	3.30c
New York	2.95c
Philadelphia	2.50c to 3.20c
Pittsburgh	2.50c to 2.75c
*San Francisco	2.85c
**San Francisco	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c

*Carload. **Less carload.

STRUCTURAL SHAPES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Los Angeles	3.40c
New York	3.34c
Philadelphia	2.50c to 3.20c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

PLATES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in and thicker	3.00c
Cleve., 3/16-in	3.20c
Detroit	3.10c
Detroit, 3/16-in	3.30c
Ft. Worth	4.50c
Los Angeles	3.40c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.50c to 3.20c
Phila., 3/16-in	2.70c to 3.40c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

No. 10 BLUE ANNEALED SHEETS

Baltimore	3.20c to 3.66c
Boston, 3/16-in	3.915c
Buffalo	3.80c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.50c
Ft. Worth	4.70c
Los Angeles	3.85c
New York	3.50c to 3.60c
Portland	4.00c
Philadelphia	3.10c to 3.20c
Pittsburgh	3.20c
San Francisco	3.75c
Seattle	4.00c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.20c to 4.56c

No. 24 BLACK SHEETS

Baltimore	3.60c to 4.30c
Boston	5.00c
Buffalo	4.30c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.10c
New York	3.90c to 4.00c
Philadelphia	4.10c to 4.25c
Pittsburgh	3.65c
Portland	4.90c
San Francisco	4.80c
Seattle	5.00c
St. Louis	4.45c
St. Paul	3.95c
Tulsa	4.75c

No. 24 GALVANIZED SHEETS

Baltimore	4.30c to 5.45c
Boston	5.85c
Buffalo	5.15c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.50c
Detroit	4.90c
Ft. Worth	5.75c
Los Angeles	5.30c
New York	4.60c to 4.70c
Philadelphia	5.00c to 5.10c
Pittsburgh	4.50c
Portland	5.65c
San Francisco	5.35c
Seattle	5.75c
St. Louis	5.25c
St. Paul	4.90c
Tulsa	5.55c

BANDS

Baltimore	3.40c to 4.06c
Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.40c to 3.90c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.16c
Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.15c
New York	4.49c
Philadelphia	3.65c to 4.25c
Pittsburgh	4.25c to 4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons	Flats squares
Baltimore	4.00c	4.50c
Boston	4.05c	4.55c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	3.30c†	3.80c†
Philadelphia	3.25c†	3.75c†
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....
Tulsa	4.66c	5.16c

*Rounds only.
†Plus quantity extras.

COLD ROLLED STRIP

Boston, 0.100-inch, 500-lb. lots	6.00c
Buffalo	5.85c
Chicago*	6.10c
Cincinnati	7.15c
Cleveland*	5.95c
Detroit*	6.05c
New York	5.75c to 6.25c
Philadelphia	5.50c

*Net base, straightening, cutting, boxing one ton or more.

SWEDISH IRON AND STEEL
New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c
Flats and Squares	
Baltimore, New York, Phila.	6.60c

Light Buying on Coast

Structurals and Pipe Most Active—Pig Iron Inactive as Foreign Iron Shpments Appear

SAN FRANCISCO, Nov. 4.—(*By Air Mail*)—Sales of and inquiries for iron and steel products generally continue light and little improvement is looked for the remainder of the year. Demand for cast iron pipe is again fairly strong, though little improvement is noted in prices, which continue low.

While it is rumored that some nonconference intercoastal lines are quoting a 5-cent reduction on steel, the two largest producers, who control their own steamship lines and are nonconference members, are holding to the 35-cent rate established some time ago by the conference line members.

Pig Iron and Coke

Demand for pig iron and coke continues light with no important sales or inquiries. Foundry operations continue limited, with orders sufficient only for two or three days. Several good sized shipments of foreign foundry and coke are due to arrive on the Coast early next month. Pig iron prices are unchanged.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00
*Dutch	24.50

*C.i.f., duty paid.

Bars, Plates and Shapes

One of the largest reinforcing bar awards placed this year in the San Francisco district was booked by Gunn, Carle & Co., 600 tons for the Fox theater. Awards for the week exceeded 2000 tons, bringing the aggregate for the year to 51,485 tons, compared with 35,624 tons for the corresponding period of 1926. Other important awards involved 400 tons for a grain elevator at Kelso, Wash., and 330 tons for a hotel in Los Angeles. Bids have been opened on 1000 tons for the Butler building, San Francisco. The Los Angeles county flood control district will receive bids Nov. 7 for 400 tons. Prices in the San Francisco district are not firm and range from 2.75c to 2.85c on lots of 200 tons and from 3.00c to 3.10c on smaller shipments.

Inquiries for fabricated plate material, with one exception, are confined to lots of less than 100 tons. An inquiry for a pipe-line in Arizona calls for 600 tons of No. 10 and 12 gage blue annealed material or 1000 tons of ⅜-inch plate. The market has been devoid of inquiries for oil storage tanks for many weeks. To date this year 62,209 tons have been placed, compared with 68,755 tons for the same period last year. Prices continue at 2.40c c.i.f. Coast ports.

Structural shapes are active. Bookings include a 950-ton transmission tower line for the Southern California Edison Co. at Los Angeles, placed with the Pacific Coast Steel Co., 475 tons for a crane runway in Seattle and 360 tons for a grain elevator at Kelso, Wash. Lettings aggregated close to 2500 tons and brought the total for the year to 124,858 tons, compared with 105,599 tons for the corresponding period in 1926. Bids were closed this week on 850 tons for the Seattle auditorium and bids are being taken on two bridges for the Simpson Logging Co., Seattle, calling for 2100 tons. A western railroad has taken bids on 700 tons for a bridge. Plain material remains firm at 2.40c c.i.f.

Other Finished Material

Bids have been opened on 4163 tons of pipe for Los Angeles, the Pacific States Cast Iron Pipe Co. being low bidder, at about $35.70 a ton delivered. Other important lettings include 450 tons for Vancouver, B. C., and 225 tons for a street improvement project at San Diego. Awards during the week totaled 1749 tons, bringing the aggregate for the year to 68,569 tons, compared with 62,786 tons for the same period last year. New inquiries involve 300 tons for Burbank, Calif., and 198 tons for San Diego. Plans are being prepared for an extension to the water system at Santa Clara, Calif., calling for 1500 tons. Los Angeles awarded 570 tons of 6-inch welded pipe to Grinnell Co. This was the only award of over 100 tons in the tubular market.

Northwest Trade Fair

SEATTLE, Nov. 3.—General business conditions in the Pacific Northwest are fair. Wholesale jobbers report a normal turnover last month equal to September and on a par with October, 1926. Construction and outdoor work is slackening, due to seasonal conditions, but several building projects are assuming definite shape for early action.

Approval of the Longview bridge project is expected to be immediately followed by active prosecution of the work which will involve 12,000 tons of steel.

Steel prices are holding firm. Importers report October was quiet, following a satisfactory volume of business in September.

Pig Iron and Coke

Foundry operations are light and as stocks are ample, there is little interest in pig iron and coke. Prices of imported materials are unchanged while the domestic market is steady.

Bars, Plates and Shapes

Mill prices on finished steel are unchanged and the market appears steady, no cutting below the levels of 2.40c for plates and shapes and 2.35c for bars being reported. Local prices on reinforcing materials, due to keen competition between the two local manufacturing plants, are still open, prices of 2.00c and under being reported.

While no important tonnages of bars have been awarded this week, local mills report considerable buying by wholesale houses. About 1500 tons of reinforcing are pending including 600 tons for the Seattle auditorium, 500 tons for the Diablo dam, Seattle, 150 tons Bellingham viaduct and 210 tons involved in construction at Fort Lewis. Sheble & Snyder, Seattle, have the contract for a two company barracks at $140,000. Bids for a bridge over Mill Creek, Salem, Oreg., involving 150 tons, will be opened Nov. 7.

The largest award of the week for structurals, 850 tons for the Seattle civic auditorium, went to Wallace Bridge & Structural Steel Co., the general contract going to Bartleson & Ness at $872,000. Several large projects are pending, the heaviest tonnage involved being more than 2000 tons for two bridges for the Simpson Logging Co. for railroad construction in Mason county. Other structural jobs pending include 1300 tons for pulp mills at Hoquiam and Port Townsend. Bids are to be opened at Victoria, B. C., Nov. 4 for the Wardner bridge involving 300 tons.

Finished Material

The Simpson Logging Co. has placed an order for about 2500 tons of 75 and 90-pound steel rail and accessories with the United States Steel Corp. This material is to be used in the company's 6½-mile road project and some on main line replacement.

Seattle is calling for bids Dec. 2 for furnishing electrical machinery and equipment for the city's No. 6 unit of the Cedar Falls hydro-electric development, estimated to cost approximately $200,000. Contract for erection of the power house, involving an unstated amount of steel, has not yet been awarded.

Vancouver, B. C., water board has awarded a contract for furnishing approximately 925 tons of steel water pipe to Leith, Murray & Co. Ltd. at $45,617 for lap welded.

Steel Castings Output Lowest For Year

Washington, Nov. 8.—Production of steel castings in September totaled 66,781 tons, the lowest in over 18 months. September 1926 production was 79,471 tons, according to department of commerce statistics based on reports of principal manufacturers. September bookings dropped to 50,295 tons from 61,369 tons in August. Following are further monthly comparisons:

BOOKINGS

1926	Net tons	Per cent of capacity	Railway specialties net tons	*Miscellaneous castings net tons
Sept.	67,363	51	22,031	45,332
Total 9 mos.	764,094	64	288,461	475,633
Oct.	74,680	56	27,827	46,853
Nov.	71,124	54	28,079	43,045
Dec.	86,006	65	38,111	47,895
Total, 12 mos.	996,266	63	382,478	613,426
1927				
Jan.	101,768	77	48,717	53,051
Feb.	91,797	69	39,792	52,005
Mar.	82,558	62	31,380	51,178
Apr.	78,352	59	31,004	47,348
May	66,736	50	24,644	42,092
June	84,675	64	34,702	49,973
July	72,012	54	29,979	42,033
Aug.	61,369	46	20,220	41,149
Sept.	50,295	38	15,737	34,558
Total 9 mos.	689,562	58	276,175	413,487

PRODUCTION

1926				
Sept.	79,471	60	22,837	56,634
Total 9 mos.	846,400	71	324,559	521,841
Oct.	79,804	60	25,737	54,067
Nov.	86,626	65	24,421	62,205
Dec.	82,336	62	28,699	52,637
Total 12 mos.	1,095,166	69	403,416	691,750
1927				
Jan.	84,674	64	32,982	51,692
Feb.	85,464	64	33,250	52,214
Mar.	97,329	73	38,784	58,545
Apr.	90,570	68	36,693	53,877
May	81,950	62	31,659	50,291
June	82,118	62	30,538	51,580
July	75,551	57	29,679	45,879
Aug.	83,198	63	29,774	53,424
Sept.	66,781	50	19,486	47,295
Total 9 mos.	747,635	63	282,845	464,790

Donner Gets Drawback

Washington, Nov. 8.—The treasury department has announced the allowance of a drawback on steel billets and bars manufactured by the Donner Steel Co., Buffalo, with the use of imported ferromanganese and ferrosilicon.

Babbitt Consumption Off

Washington, Nov. 8.—Following a gain in August, babbitt metal consumption dropped somewhat in September to 4,792,367 pounds, compared with 5,749,991 pounds in September, 1926, according to reports of 31 manufacturers to the department of commerce. Sales by manufacturers declined in September. Further monthly comparisons follow:

	Total apparent consumption	Sold by manufacturers	Consumption by producers
	(Figures given in pounds)		
1925			
Total	69,023,831	54,897,706	14,126,125
1926			
September	5,749,991	4,267,661	1,482,330
Total 9 mos.	51,208,453	39,410,228	11,798,225
October	5,471,086	4,132,114	1,338,972
November	4,747,045	3,600,145	1,146,900
December	4,508,198	3,412,623	1,095,575
Total, 1926	65,934,782	50,555,110	15,379,672
1927			
January	5,439,689	4,219,998	1,219,691
February	5,452,200	4,385,951	1,066,249
March	5,626,400	4,418,409	1,207,991
April	4,812,045	3,862,005	950,040
May	4,945,705	3,975,104	970,601
June	4,854,653	4,024,810	829,843
July	4,604,786	3,162,325	1,442,161
August	5,496,659	*4,488,895	*1,007,764
September	4,792,367	4,116,525	675,842
Total 9 mos.	46,024,504	36,654,022	9,370,482

*Revised.

Foundry Equipment Order Index Low

Cleveland, Nov. 8.—Gross orders for foundry equipment in September were below the average, as indicated by the index figure of 80.4 for that month. The base has been computed by average of monthly shipment for 1922-23-24, according to the report of the Foundry Equipment Manufacturers association. The October, 1926, index figure was 114.0. Further comparisons follow:

	1924	1925	1926	1927
Jan.	141.8	104.2	168.2	180 4
Feb.	121.0	108.8	154.9	198 0
Mar.	121.9	159.3	157.3	131.1
Apr.	146.8	124.3	113.2	130.0
May	108.4	113.3	128.5	134.8
June	96.4	110.5	133.5	138.4
July	62.8	117.0	127.3	89.9
Aug.	77.5	190.0	141.2	106.4
Sept.	66.0	94.2	114.0	80.4
Oct.	85.5	149.5	140.5	.....
Nov.	91.0	180.3	133.4	.....
Dec.	137.8	140.1	181.0	.....

Base: Average monthly shipments for 1922-23-24.

Detroit Aircraft Center

Detroit, Nov. 8.—The aircraft industry here represents an investment of $18,000,000 with 23 companies manufacturing planes, parts or engines, and employing about 1320 persons on an annual payroll of $2,500,000, according to the Detroit board of commerce.

Of the 23 manufacturers, five are producing aircraft, while 18 are producing parts and engines. The planes turned out in 1926 were valued at $1,000,000, while the engines and parts manufacturers' products were estimated to value $3,500,000.

United Kingdom received 156,496 pounds of woven wire fencing from the United States in August, out of the total shipment of 746,654 pounds.

Struggle for Iron Sales

(*Concluded from Page* 1183)

melters purchased a total of about 1000 tons. Some small sales were made in Cleveland, aggregating 500 tons, at a reported price of $18, base, furnace.

Chicago, Nov. 8.—Northern pig iron buying for first quarter is not gaining momentum, but quiet sales for that period continue. One striking feature of the market is the almost entire absence of formal inquiry. Deliveries are good, but shipments show no gain over last month. Estimates are that the total amount of iron received by vessel from eastern furnaces in the past several months is about 15,000 tons. It is reported that two cargoes are yet to come. The iron is offered under $18.50, base, and some below $18. The price of $18.50 here is holding for first quarter and spot business. Silvery sales are light.

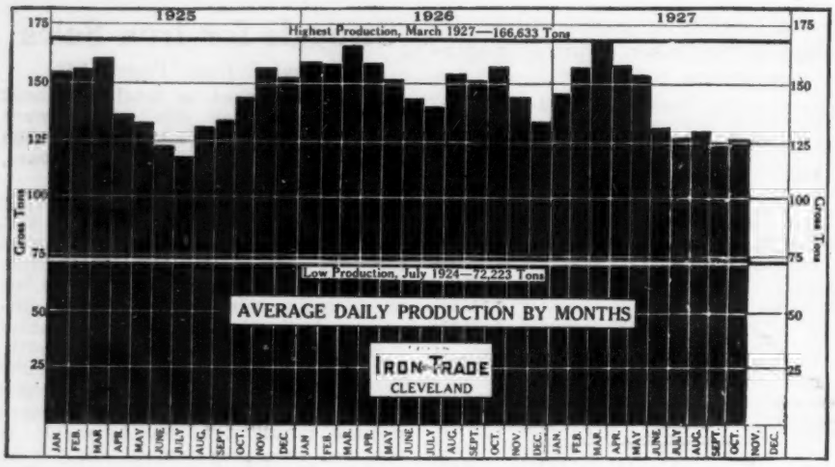
Cincinnati, Nov. 8.—One small sale of Tennessee foundry iron to an Ohio river melter is reported at $16, base, Birmingham. Reports apparently well authenticated are to the effect that lake furnaces are quoting $16.50 base. A local agency reports sales of 2500 tons of northern foundry iron to an Indiana melter for first quarter, and 400 tons to an Indiana buyer for last quarter and first quarter. An inquiry for 400 tons of 14 to 16 per cent silicon iron has been issued by the Ford Motor Co. A Dayton manufacturer also wants 400 tons.

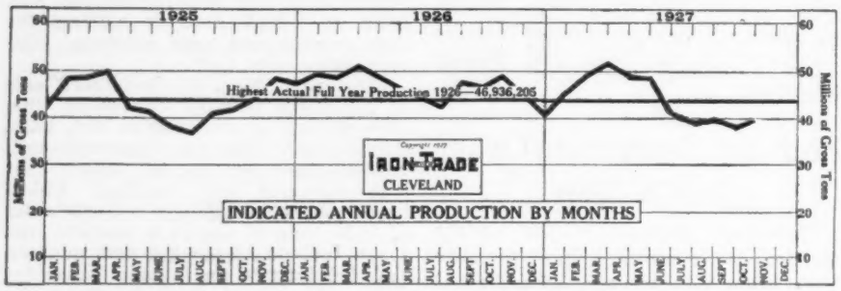
St. Louis, Nov. 8.—Purchasing of pig iron has broadened somewhat. The drop in price of southern iron has brought out some business, and more interest is being taken in northern iron. Melters generally are satisfied with prices, but due to lack of new business are not disposed to commit themselves. Sales reported during the week totaled 6800 tons. The largest single transaction was 1000 tons for first quarter delivery to a melter in the district proper. The leading local producer booked 5500 tons, and a representative of a Birmingham furnace sold 1000 tons. Much of the tonnage was for delivery during the first quarter.

Chicago iron is freely offered in this district on a basis of $18, furnace, equivalent to $20.16, delivered. The southern price, $16, Birmingham, is equivalent to $20.42 delivered in St. Louis. The St. Louis Gas & Coke Co. continues to quote $19.50 to $20, f.o.b. Granite City. The barge and rail rate brings the price of southern iron somewhat below $20.42. St. Louis.

Birmingham, Ala., Nov. 8.—While pig iron buying is a little more active, no buying movement is reported. The price, $16, base, Birmingham, is only effective for the last two months of the year, and business which cannot be delivered in that time may be canceled. One of the large cast iron pipe companies has bought some tonnage, but nothing near the amount reported elsewhere. It is probable one or more blast furnaces will be blown out soon. Some tonnage is moving toward the Ohio river district.

Metal Mouldings Corp., Detroit, has increased its capital from $25,000 to $50,000.





October Ingots in Small Gain

PRODUCTION of steel ingots again turned upward in October and partially recovered the setback suffered in September, nevertheless, operations were at a subnormal rate. According to statistics compiled by the American Iron and Steel institute from figures reported by companies which in 1926 made 95.01 per cent of the country's total steel ingot production, the output for October was 3,289,013 gross tons. Compared with the 3,232,108 tons produced in September, this was an increase of 56,905 tons. Both October and September had 26 working days.

Average daily production in October was 126,500 tons, which compared with the 124,312-ton daily rate of the preceding month, was a gain of 2188 tons, or 1.7 per cent. The rate was the lowest for any October since 1924, when production averaged 115,756 tons per day. One year ago, output was the rate of 156,713 tons per day. With a production of 126,500 tons per day in October and 311 working days in the year, the indicated annual rate of production was 39,340,000 gross tons. For September the rate was 38,660,000 tons and for August, 39,980,000 tons. According to the institute's calculations, operations in October were at a rate of 77.9 per cent, as compared with 76.56 per cent in September and 79.17 per cent in August.

The percentage of operation figures of the institute now are based on a practical capacity of 50,500,000 gross tons of open-hearth and bessemer steel ingots as of Dec. 31, 1926, and for last year a capacity of all ingots of 50,000,000 tons as of Dec. 31, 1925. In June all figures for the current year were revised, inasmuch as it had not been found feasible to obtain monthly figures from a sufficient proportion of producers of crucible and electric ingots to represent fairly the production of ingots by those processes.

Ingots made during the first nine months of this year totaled 36,788,807 gross tons, as compared with 39,763,695 tons in the corresponding period last year. Average daily production for 1927 has been 142,042 tons, against 153,528 tons in 1926 and operations have averaged 87.48 per cent against 95.49 per cent.

Steel Ingot Production—1926-27

95.01 Per Cent of Industry Reporting

1926	Open-hearth Gross Tons	Bessemer	All other	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent of operation
Jan.	3,326,846	581,683	13,664	3,922,193	4,132,210	26	158,931	98.86
Feb.	3,023,829	556,031	12,818	3,592,678	3,785,051	24	157,710	98.10
March	3,590,791	635,680	15,031	4,241,502	4,468,617	27	165,504	102.94
April	3,282,435	601,037	13,652	3,897,124	4,105,799	26	157,915	98.22
May	3,201,230	516,676	10,487	3,728,343	3,927,979	26	151,076	93.97
June	3,036,162	498,764	9,441	3,544,367	3,734,153	26	143,621	89.33
July	2,911,375	526,500	12,372	3,450,247	3,634,993	26	139,807	86.96
Aug.	3,145,055	627,278	12,003	3,784,331	3,986,966	26	153,345	95.38
Sept.	3,089,240	612,588	12,660	3,714,488	3,913,383	26	150,515	93.62
Oct.	29,876,267	5,220,254	.....	35,096,521	36,788,807	259	142,042	87.48
Total 10 mos.	31,831,547	5,786,758	124,426	37,742,731	39,763,695	259	153,528	95.49
Nov.	2,915,558	592,239	9,605	3,517,402	3,705,744	26	142,529	88.65
Dec.	2,788,479	493,172	8,919	3,290,570	3,466,766	26	133,337	82.94
Total	37,535,584	6,872,169	142,950	44,550,703	46,936,205	311	150,920	93.87

95.40 PER CENT OF INDUSTRY REPORTING

1927								
Jan.	3,041,233	545,690	.....	3,586,923	3,759,877	26	144,611	89.06
Feb.	3,042,232	565,201	.....	3,607,433	3,781,376	24	157,557	97.03
March	3,701,418	590,716	.....	4,292,134	4,499,092	27	166,633	102.62
April	3,340,852	565,634	.....	3,906,486	4,094,849	26	157,494	96.99
May	3,272,810	557,683	.....	3,830,493	4,015,192	26	154,430	95.10
June	2,822,477	486,047	.....	3,308,524	3,468,055	26	133,387	82.15
July	2,595,692	436,446	.....	3,032,138	3,178,342	25	127,134	78.29
August	2,805,657	505,584	.....	3,311,241	3,470,903	27	128,552	79.17
Sept.	2,611,976	471,455	.....	3,083,431	3,232,108	26	124,312	76.56
Oct.	2,641,920	495,798	.....	3,137,718	3,289,013	26	126,500	77.90
Total 10 mos.	29,876,267	5,220,254	.....	35,096,521	36,788,807	259	142,042	87.48

Figures for 1927 exclude crucible and electric ingots. It has not been found feasible to secure monthly figures from a sufficient proportion of producers to represent fairly the production of steel ingots by these processes.

To Seek Lower Rates on Tanks and Boilers

New York, Nov. 8.—Manufacturers of steel tanks and boilers are expected to file an application for a reduction in freight rates which will place them on a parity with makers of cast iron tanks and boilers. It is expected this application will be filed with the official classification committee of the Trunk line association, New York, before Nov. 30, so it may be placed on the docket for attention in 1928.

E. R. Caldwell & Son Brass Co. Inc., Syracuse, N. Y., has filed a voluntary petition in bankruptcy. Harold S. Coyne has been appointed receiver.

Comparison of Open-Hearth Plants Will Benefit Steelmakers

Details of Steelworks Furnace Construction Will Be Assembled in Composite Form—Resume of Meeting

BELGIAN rails are being delivered at eastern ports and sheet steel at New Orleans and Galveston, Tex., at prices considerably lower than United States makers can afford to quote, members of the open-hearth committee of the American Institute of Mining and Metallurgical Engineers were told at the sixth meeting at Hotel Statler, Detroit, Nov. 2-4. More than 100 open-hearth superintendents and steelworks operating executives attended the meeting and joined in the discussion of the 25 questions which formed the background of the various sessions.

L. F. Reinartz, assistant general superintendent in charge of steel plant, American Rolling Mill Co., Middletown, O., presided at all sessions. Mr. Reinartz in his opening remarks announced that a questionnaire dealing with data for comparison of open-hearth plants and furnace construction and containing 161 questions had been prepared by the open-hearth committee for distribution among various independent steel manufacturers for answering. He pointed out that the data are to be assembled in blueprint form, a copy of which when completed, will be forwarded to all who participate in the movement. J. V. W. Reynders, consulting engineer, New York, urged those attending the open session to co-operate in the movement. He prevailed upon members not to become too much of a specialist. Look to your raw materials and what becomes of the steel in the rolling mill operation, he stated. Every open-hearth man should analyze the difficulties of the blast furnace, coke ovens, iron ore and coal mines, and should know the economy of scrap prices and the cheapest mixtures. In the speaker's opinion there is nothing more serviceable than to follow through good and bad heats to determine the cause.

Emphasizes Pouring Factors

In discussing pit practice, G. D. Tranter, open-hearth superintendent, American Rolling Mill Co., Middletown, O., pointed out that good pouring practice depends upon ladle linings, adjusting nozzles, assembling stopper rods, mold conditions and teeming. He stated the ladle brick should be of dense structure and at the same time should be of uniform size in order to secure tight joints. The average life of a ladle lining, according to the speaker, is approximately 212 heats.

In discussing the same subject, J. M. Hughes, general superintendent, Sharon Steel Hoop Co., Lowellville, O., in the course of his remarks pointed out that in coating molds with graphite, a whirling spray similar to a lawn spray is found advantageous.

H. A. Young, superintendent of open hearths, Allegheny Steel Co., Brackenridge, Pa., in speaking on "Open or Rimming Steel Manufacture" stated that his pouring practice involved the employment of two nozzles. Aluminum in the form of a ⅜-inch rod is used in the mold and 10 per cent limestone in the charge. Practice at the Republic Iron & Steel Co. as explained by H. M. McClelland, open-hearth superintendent involves the use of shot aluminum and the ingots are rimmed as far as possible before being capped. Ladle nozzles are driven in place and while some difficulty is experienced in getting the nozzle to set straight, the practice eliminates four men. On sheet bar heats, 11 to 12 per cent limestone is charged and approximately 5 pounds of fluorspar per ton. About 45 per cent hot metal is used also.

W. R. Faithful, open-hearth superintendent, Central Iron & Steel Co., Harrisburg, Pa., pointed out that too high temperature in molds has a tendency to make the steel sluggish. The use of preheaters for heating air before going into the regenerative system of an open-hearth furnace as compared to the installation of waste boilers was discussed by W. Dyrssen, chief engineer, Blaw-Knox Co., Pittsburgh. W. H. Fitch, Carborundum Co., Perth Amboy, N. J., maintained that it is desirable to reduce regenerators allowing the recuperators to do the work of a heat exchanger. In the opinion of E. A. Smith, open-hearth superintendent, Andrews Steel Co., Newport, Ky., the use of silica brick in checkers increases the life.

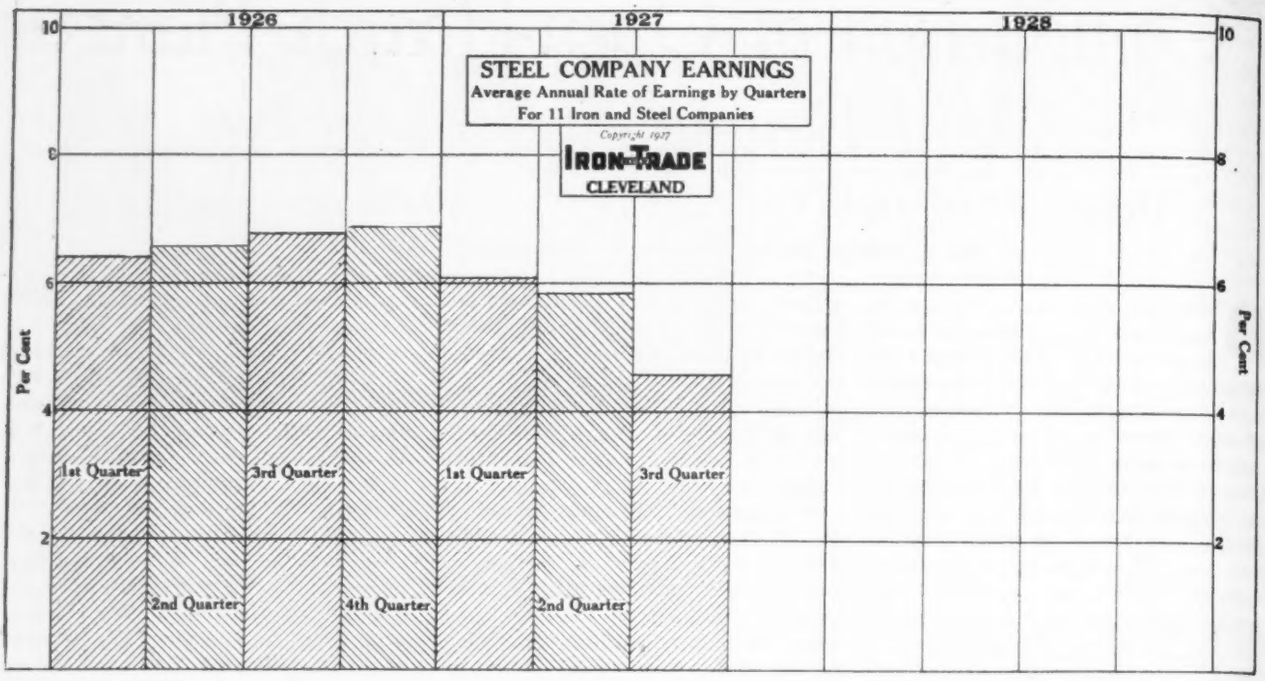
Too much draft on the blooming mill, the temperature of the metal and the temperature of heating employed in the soaking pit are a few of the causes which produce snakes in the steel, according to H. M. McClelland. In the opinion of W. R. Faithful, this defect is due to the mold and to an improper pouring temperature. J. W. Mills, open-hearth superintendent, National Enameling & Stamping Co., Granite City, Ill., declared that snakes are due to a thin skin on the ingot. The remedy, he stated, is to rephosphorize the heat.

Suggests Deep Bath

In discussing the relationship of the slag volume to the speed of the furnace and to the quality of steel, E. A. Smith declared that if the bath is carried deep so that little steel is exposed to the slag, good results are obtained. He declared that the percentage of limestone used in the charge depended upon the class of steel being melted. Some grades, he said, necessitated charging 10 per cent while other grades took 12 per cent. Up to 8 per cent will take care of the chemical analysis, according to H. M. McClelland, but above this percentage the heat time is materially increased.

S. B. Muir, open-hearth superintendent, Donner Steel Co., Buffalo, explained conditions when 12 per cent limestone was included in the charge. If less is used, he stated, the heat becomes wild. From 5 to 6 pounds of fluorspar per ton of steel is employed for cutting up the slag. Iron oxide in the slag, when working a heat of steel intended for forgings, amounts to about 60 per cent, the speaker pointed out. G. D. Walter, open-hearth superintendent, Atlantic Steel Co., Atlanta, Ga., stated that 10 per cent limestone is included in the charge when making steel for plates. Iron oxide in the slag, he said, amounts to 12 per cent. When uniform iron and clean scrap is included in the charge, it is only necessary to use from 8 to 9 per cent lime-

(*Concluded on Page* 1201)



Steel Earnings Decline Sharply as Prices and Output Fall

NINETEEN TWENTY SEVEN is proving to be one of the least profitable periods in the recent history of the iron and steel industry. Earnings for leading companies have been declining since the first three months of the year and in the third quarter the recession was little short of being precipitous. Average earnings of 11 leading representatitve iron and steel companies, during the third quarter, dropped to the low annual rate of 4.56 per cent on their aggregate capitalization. This compared with a return of 5.80 per cent in the preceding quarter and of 6.76 per cent in the corresponding quarter of 1926.

The eleven companies, included in the computation by IRON TRADE REVIEW had an average capitalization at the close of 1926 of $3,629,648,367. The earnings of these companies after all charges, before interest and dividends, in the third quarter were $41,376,169 against $52,676,208 in the second quarter of 1927 and $60,097,917 in the third quarter of 1926. The decline from the preceding quarter was 21 per cent and from the third quarter of 1926 it was 31 per cent. For the first nine months of 1927 the earnings of the 11 representative companies, included in the list totaled $149,315,676 a decline of 14 per cent from the $174,809,532 earned by these companies in the corresponding period of 1926.

In the accompanying table the earnings by quarter for each of the 11 companies, for interest and dividends, are shown from the first quarter of 1926. The diagram shows the average annual rate of earnings by quarters for all of the companies in the list.

Earnings of practically all important companies showed a decrease in the third quarter of 1927 compared with the corresponding quarter of 1926. There are a few exceptions, the most striking of which is the important gain in earnings for the Colorado Fuel & Iron Co. compared with one year ago. As was to be expected, the showing of the United States Steel Corp. stands up somewhat better than that of the independents. The annual rate of earnings on capital for the Steel corporation in the third quarter was 4.68. For the 10 independents, in the list the rate of return on their capital was 4.32.

Two factors contributed chiefly to the decline in earnings of steel companies this year. First of these is the decline in prices. The second factor is the drop in demand and output. Iron and steel prices are now only 34 per cent above the 1913 level and they are 7 per cent below the level of one year ago.

Production of iron and steel which declined during the summer continues on a reduced plane. Although the output of steel ingots for the first 10 months of the year was only 7 per cent below production for the corresponding period of 1926, the October output was nearly 20 per cent below that for October, 1926.

Marked decline in the output of automobiles, due chiefly to the curtailment of Ford production, the drastic slump in recent months of buying of railway equipment, and the depression in the oil industry this year has meant that three of the most important consumers of iron and steel have fallen far short of their normal requirements.

While this situation represents an acute condition which may undergo important improvement over the coming months, the fact is that low prices and inadequate earnings on capital in the steel industry have prevailed for some years. This does not reflect a lack of productive efficiency, but rather such a striving for efficiency that plant capacities have become enlarged. All this emphasizes the sig-

Steel Company Earnings By Quarters

Compilation Shows Total Capitalization and Earnings for Interest and Dividends for 11 Companies

Name		Total capital	First quarter earnings	Per cent	Second quarter earnings	Per cent	Third quarter earnings	Per cent	Fourth quarter earnings	Per cent	Full year	Per cent
United States Steel Corp.	1927	$2,184,520,353	$30,824,339	1.41	$30,681,912	1.41	$25,719,054	1.17				
	1926	2,139,926,286	30,743,570	1.43	32,266,579	1.50	36,277,565	1.69	$35,768,026	1.67	$135,055,740	6.31
Bethlehem Steel Corp	1927	600,188,800	8,501,996	1.42	7,917,703	1.32	5,661,190	0.94				
	1926	569,633,355	8,930,882	1.56	8,954,247	1.57	7,424,015	1.30	7,469,444	1.31	32,778,588	5.75
Youngstown Sheet & Tube Co.	1927	198,895,106	3,267,228	1.63	3,060,732	1.53	2,574,889	1.29				
	1926	190,169,846	4,869,012	2.56	5,246,520	2.75	5,043,536	2.65	4,280,613	2.25	19,439,681	10.21
Jones & Laughlin Steel Corp.	1927	180,738,470	3,857,302	2.13	3,767,419	2.08	2,791,423	1.54				
	1926	172,223,835	3,867,100	2.23	4,067,236	2.36	4,232,620	2.45	3,832,619	2.23	15,999,575	9.29
Inland Steel Co.	1927	79,644,735	2,316,613	2.90	2,401,531	3.01	1,414,708	1.77				
	1926	77,505,233	1,639,284	2.10	1,927,302	2.49	1,823,092	2.35	2,461,193	3.17	7,850,871	10.13
Republic Iron & Steel Co.	1927	109,369,163	1,297,810	1.18	1,238,221	1.13	749,705	0.68				
	1926	112,706,388	1,618,573	1.43	1,413,429	1.25	1,572,815	1.38	1,643,818	1.44	6,248,635	5.54
Wheeling Steel Corp.	1927	104,791,746	1,278,222	1.22	1,237,970	1.18	1,271,643	1.21				
	1926	102,704,680	1,490,375	1.45	1,611,821	1.56	1,691,514	1.64	1,809,449	1.76	6,603,159	6.43
Colorado Fuel & Iron Co.	1927	71,888,868	2,138,608	2.98	1,116,778	1.55	360,722	0.50				
	1926	75,277,489	1,409,581	1.87	937,127	1.24	221,525	0.30	1,612,128	2.14	4,180,361	5.55
Otis Steel Co.	1927	33,407,065	838,680	2.51	776,229	2.32	543,060	1.62				
	1926	32,605,652	1,012,694	3.10	642,007	1.96	836,871	2.56	181,836	0.55	2,673,435	8.20
Gulf States Steel Co.	1927	18,145,975	237,095	1.30	134,130	0.74	150,182	0.82				
	1926	17,621,182	256,634	1.45	160,018	0.91	148,288	0.84	234,851	1.33	799,791	4.53
Trumbull Steel Co.	1927	48,058,086	605,406	1.25	343,583	0.71	139,593	0.28				
	1926	46,730,002	859,271	1.83	828,353	1.77	826,076	1.76	973,159	2.08	3,486,859	7.46
Total	1927	3,629,648,367	55,263,299	1.52	52,676,208	1.45	41,376,169	1.14				
	1926	3,537,103,898	56,656,976	1.60	58,054,639	1.64	60,097,917	1.69	60,267,163	1.70		

nificance of the recent statement of President C. M. Schwab of the American Iron & Steel institute that "the next great move of the steel industry must be the proper and economic distribution and selling of its products."

Discuss Steelworks Data

(*Concluded from Page* 1199)

stone according to J. M. Hughes. Consensus of opinion concerning the percentage and analysis of pig iron for the greatest speed of a furnace is between 1 and 1.30 per cent silicon and between 1.50 and 2 per cent manganese.

In discussing a method of setting and maintaining open-hearth bottoms, G. D. Tranter pointed out that after the brick work is completed, a heavy layer of chrome ore is put on and this is followed by a layer of magnesite mixed with about 20 per cent cinder. Cinder then is melted over the furnace and the banks. When the furnace is in operation, any bad holes or cuts on the slag line are repaired by using magnesite. C. W. Veach, open-hearth superintendent, Bettendorf Car & Foundry Co., Bettendorf, Iowa, advised the use of Washington magnesite. He pointed out that this material gives good surface and that little difficulty is encountered with bottom trouble. The consumption averages approximately 33.4 pounds per ton of steel made. In the opinion of K. A. McCutcheon, Washington magnesite is more uniform in the mixture of courses and fines. A satisfactory mixture of one part slag to three parts magnesite in bank repairs is satisfactory in the speaker's opinion. On bottom repairs a one to four mixture by volume gives good results.

Consensus of opinion indicated that relining costs are higher with producer gas than with fuel oil. J. D. Walter, assistant open-hearth superintendent, Lukens Steel Co., Coatesville, Pa., mentioned that maintenance costs averaged between 15 and 20 per cent lower when the furnace operates on fuel oil than when producer gas is used.

Checker life amounts to approximately 800 heats, at the end of which time approximately 30 per cent of the brick are reclaimed according to S. B. Muir. Other expressions from members of the association placed the reclamation of checker brick between 25 and 30 per cent.

F. B. McKune, open-hearth superintendent, Steel Company of Canada, Ltd., Hamilton, Ont., described at some length a recently designed port for open-hearths. He pointed out that the air meets the gas at right angles and is directed into the bath of steel by a brick-lined port or mixer which has a pitch of 3 inches a foot. The gas pressure at the mixer amounts to 2 ounces and about 8000 cubic feet of air per minute is supplied by a motor-driven fan.

Infiltration on the incoming side of open-hearth furnaces amounts to 10 per cent of the incoming air, according to W. P. Chandler Jr., manager, open-hearth department, American Heat Economy Bureau, Pittsburgh. The speaker contended that the draft should be controlled to clear the furnaces of cold gases. F. B. McKune directed attention to the fact that foaming of steel when by-product gas is used as fuel is caused by too much air. A lengthy description of the Isley open-hearth furnace was presented by G. A. Merkt, engineer, Morgan Construction Co., Worcester, Mass.

W. H. Ramage, vice president, Valley Mould & Iron Co., Sharpsville, Pa., pointed out that the principal factors which influence mold iron includes the design of the mold, method of manufacturing, the care in the steel plant, and the chemical analysis and physical condition of the iron.

After reviewing briefly the development of ingot molds, E. H. Williams, president, Vulcan Mold & Iron Co., Latrobe, Pa., emphasized the important steps in mold manufacture as including the drying of the cheek, care in securing uniform castings and the temperature at which the iron is poured into the ingot mold.

Budgets Becoming Important Factor in Management and Profits

STEADY advances have been made in the standards of salary administration, job analysis and classification and the measuring of office output, it was brought out at the annual convention of the American Management association held at the Palmer House, Chicago, Nov. 1-4. Other subjects considered were departmental budgeting, incentives for executives, discovering junior executive talent, creating and maintaining morale in plant, sales and office forces, and the compensation of office employes.

Salary standardization, it was pointed out, has been adopted by a growing number of industrial and business groups and corporations, since the salary standardization report of the American Management association was put out in 1925. It is estimated that number has grown five or six times in the past two years.

The question of budgets in industrial management and the relation of these budgets to profits was considered from a number of angles. Thomas R. Jones, assistant general manager, Cincinnati Milling Machine Co., Cincinnati, outlined budgets for production and inventory as carried out in his company. He declared that the sales expectancy organization in his company obtains surprising accuracy in forecasting the volume of probable sales over a period of six months and more by the study of general business trends, and the trends of business as affecting buyers of the company's products.

He pointed out that this plan works effectively for the company's products of 32 basic machine tools and that production schedules are based on the estimates of sales by the sales expectancy forces, with due allowance made for seasonal fluctuations. Mr. Jones emphasized that a plant budget system and the budget forms used should be of utmost simplicity and so direct as to eliminate confusion.

A. W. Bass, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., declared that a general budget plan to be set up for all industries is fraught with difficulties and that industrial budget systems should depend upon the organization, the nature of its products and the personalities of the men in the organization. He said that companies producing numerous products requiring varying degrees of consumer demand and influenced constantly by new competition face a difficult problem in attempting to forecast sales beyond a relatively short range.

Various systems of bonuses and compensations for executives, to be paid on the basis of profits and surplus earnings, were described by M. E. Leeds, president, Leeds & Northrup Co., Philadelphia; A. S. Rodgers, president White Sewing Machine Co., Cleveland, and a number of others. The concensus of the discussion was that extra incentive wage plans should be adopted for major and minor executives. It was pointed out that many concerns are seeking methods of applying to executives the same principles that are involved in extra incentive wage plans for employes, but that it is much more difficult to measure the results of efforts of executives, especially staff executives.

Should Promote From Ranks

When scarcity of material is found in industrial or business corporation for executive positions it is due entirely to mismanagement of that corportation, it was declared by Dr. W. W. Charters, professor of education, University of Chicago. Dr. Charters submitted facts obtained from a survey of business organizations, through cooperation of the American Management association, from which he based his opinion that promotions to executive posts should be made by corporations from within their ranks, rather than from the outside. Only in cases where strictly technical posts are to be filled should executives be drawn from the outside, according to Dr. Charters, and then only when such material cannot be found in the company's organization.

It was recommended by Dr. Charters that at least one official of the company, in part time or whole, should give his attention to executive training. He declared that an executive should have five essential qualifications: First, a forcefulness to put across the ideas that are right; second, the ability to perform well tasks of great responsibility; third, a critical enough attitude to suggest changes; fourth, a constructive attitude in dealing with criticisms; and fifth, a kindliness of spirit as a background for personal contacts.

In the session on creating and maintaining morale in sales and office forces and among plant employes, opinions differed as to the adoption of pension systems. All the speakers taking part in this session emphasized that discipline coupled with fair treatment should take precedence over paternalism and excess of welfare devices. C. K. Woodbridge, president, Electric Refrigeration Corp., in speaking on the maintenance of morale in sales forces, pointed out that the ideals of the corporation and the integrity as to its products have much to do with building up and holding morale of the salesmen.

Henry W. Cook, vice president, Northwestern National Life Insurance Co., urged against the tendency toward excess welfare devices for office workers in a corporation. He recommended centralized control of salaries for office workers, salary standardization on a scientific basis and job analysis in determining the basis of salary standards. He pointed out that a number of corporations are adjusting the pay of their office forces on the output basis.

Arthur T. Morey, general manager, Commonwealth Steel Co., St. Louis, favored some sort of pension plan or old age relief for workers in plants to maintain the proper morale. The unemployment tragedy, he said, is one of the most detrimental factors in the morale of an organization. Steady employment, he suggested, will help to mend the broken cycles of prosperity by keeping consumption more steady. Safety work he emphasized as one of the important steps in the maintenance of morale, pointing out that in his company accidents, through safety instruction, have been reduced by 80 to 90 per cent, with accident compensations now only 0.21 per cent of the total payroll as against 2.16 per cent formerly.

E. H. Little, industrial engineer, United States Rubber Co., outlined a plan of salary standardization whereby maximum and minimum rates of pay were put in force for various groups, determined by job analysis, job classification, job rating and the grading of work.

News of Societies

A TENTATIVE program has been announced for the winter meeting of the American Refractories institute which is to be held at the Chase hotel, St. Louis, Dec. 6-7. The American institute of Chemical Engineers will conduct a meeting at the same time and by special arrangement the sessions on Dec. 6 will be held jointly. The preliminary program is as follows:

Tuesday, Dec. 6

Motion picture: "The Story of Fire Clay Refractories."
"An outline of the Refractories Industry," by J. D. Ramsay, president, Elk Fire Brick Co., St. Marys, Pa.
"Problems in the Development and Technology of Refractories," by Stuart M. Phelps, director of research and tests, Refractories Fellowshinp, Mellon institute, Pittsburgh.
"Some Special Refractories Which Are Still in the Experimental Stage," by G. A. Bole, research professor of ceramic engineering, Ohio State university, Columbus, O.
"Developments in Burned Dolomite as a Basic Refractory," by M. E. Holmes, professor of ceramic engineering, University of Missouri, Columbia, Mo., and G. A. Bole.
A symposium of problems in which chemical engineers are interested primarily.

Wednesday, Dec. 7

Symposium on tunnel kilns, their operation, advantages and disadvantages, etc.
"Dry Grinding of Refractories," by J. M. Gallaher, works manager, Clearfield Machine Co., Clearfield, Pa.
"Burning Refractories with Stokers," by Massillon Refractories Co., Massillon, O.
Discussions on the following subjects: "What might be considered good average and medium amount of coal to burn 1000 9-inch equivalents in several types of kilns;" "What are the benefits to be derived from using hot water in the tempering of clay mix instead of cold water?"; "What is the cause of convex surfaces on hand-molded shapes and how may same be prevented?"; "What is the best refractory for use with coals high in ash with 2 to 4 per cent iron content (Illinois Coal)?"

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Mining Congress in Washington

The American Mining congress will conduct its thirtieth annual convention at the Mayflower hotel, Washington, Dec. 1-3. Among the topics which will be discussed are mining, the keystone of industry; legislating for natural resources; states' rights, individual initiative and centralized government; modification of antitrust laws; mine taxation; and progress in the mining industry.

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Taylor Society Sets Meeting

A program of interest to general managers, production and sales managers, teachers of management, economists, psychologists and research workers has been planned for the annual meeting of the Taylor society, which is to be held Dec. 7-10 at the Engineering Societies building, New York. The sessions will be devoted to general organization and administration, production management, sales management, industrial surveys, and to the bearing of increased use of power and labor-saving equipment and methods on the industrial relations problem. H. S. Person, 29 West Thirty-ninth street, New York, is managing director of the society.

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Planning Fiftieth Anniversary

The American Society of Mechanical Engineers will celebrate its fiftieth anniversary during the week of April 7, 1928, it has just been announced. This date marks the anniversary of the organization of the society at Stevens Institute of Technology in 1880. While plans for the proposed celebration have not been entirely completed, the tentative arrangement provides for a concurrent international engineering congress of outstanding nature which will not only mark the achievements of the engineering profession for the half century, but will point the way for future growth and development. It is expected that this anniversary meeting will be held in Washington, thus giving it a national and international character.

* * *

Foundrymen Will Convene

The National Founders association will hold its regular convention at the Hotel Astor, New York, Nov. 16-17. Problems of labor and employment will receive close attention and many of the papers will deal with these subjects. The program for the meeting has been announced as follows:

Wednesday, Nov. 16

MORNING

Reports of officers and committees.
"British Trade Union Reform," by James A. Emery, counsel, National Founders association.

AFTERNOON

"Government in Business," by R. C. Marshall Jr., general manager, Associated Contractors of America Inc., Washington.
"Advantages of Co-operation Between the National Founders Association and the Better Business Bureaus for the Protection of the Investing Public," by George Gordon Battle, New York.
"The Closed Shop in the Building Industry, How It Affects Open Shop Conditions in Other Industries," by William Frew Long, general manager American Plan Association, Cleveland.
"The Foundry of Tomorrow," by E. A. Custer Jr., Philadelphia.

EVENING

Convention dinner.

Thursday, Nov. 17

MORNING

"Seven Reasons Why Most Foundries Operate at a Loss," by E. T. Runge, Cleveland.
"The Aims and Functions of the Educational Department of the National Founders Association," by L. A. Hartley, director of industrial education, National Founders association.
Committee reports.
Election of officers.

Convention Calendar

Nov. 10—American Society of Mechanical Engineers. First meeting of iron and steel division at Hotel Ohio, Youngstown, O. Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

Nov. 15—Foundry Equipment Manufacturers association. Fall meeting at Roosevelt hotel, New York. H. Cole Estep, 1213 West Third street, Cleveland, is secretary-treasurer.

Nov. 16-17—National Founders association. Convention at Hotel Astor, New York. J. M. Taylor, 39 South LaSalle street, Chicago, is secretary.

Nov. 17-18—Personnel Research Federation. Conference at Hotel Pennsylvania, New York. Col. Walter V. Bingham, 40 West

Dec. 1-3—American Mining congress. Thirtieth annual convention at Mayflower hotel, Washington. J. F. Callbreath, 84 Munsey building, Washington, is secretary.

Dec. 5-8—American Society of Mechanical Engineers. Annual meeting at Engineering Societies building, New York. Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

Dec. 6—American Refractories institute. Winter meeting at Hotel Chase, St. Louis, in conjunction with American Institute of Chemical Engineers. Dorothy A. Texter, 2202 Oliver building, Pittsburgh, is secretary.

Dec. 7-10—Taylor society. Annual meeting at Engineering Societies building, New York. H. S. Person, 29 West Thirty-ninth street, New York, is managing director.

Arrange Five-Year Study of Steelmaking

A five-year program of scientific studies in the physical chemistry of steelmaking by the Carnegie Institute of Technology, the United States bureau of mines, and an advisory board of Pittsburgh steel executives and metallurgists was launched at a meeting of the advisory board and representatives of 26 steel companies at Pittsburgh, Oct. 18.

The meeting was preceded by an inspection of the metallurgical laboratories of the bureau of mines and of the laboratories of the department of metallurgy and the bureau of metallurical research at Carnegie institute. Speakers included Dr. Thomas S. Baker, president of Carnegie Institute of Technology; Dr. John Johnston, director of the department of research and technology of the United States Steel Corp.; Scott Turner, director of the bureau of mines, and Dr. C. H. Herty Jr., head of the ferrous metallurgical section of the bureau of mines.

Will Ford Lease, Not Sell, Cars?

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Salvaging Used Parts Foreseen

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Inventories Slowing Steel Sales

Detroit, Nov 8

NOW that details of the new Ford have been definitely settled and production is under way in desultory fashion on the two-door sedan, the rumor mongers are concentrating their nimble minds on the problem of marketing. Just why Henry Ford should be devious in his financing when nearly 400,000 persons are reported to be almost unseemly in their desire to exchange cash or negotiable securities for his new model is not clear.

It is reliably reported (a phrase which prefaces all good speculation) that his new car's honeymoon will scarcely have begun before Mr. Ford will learn that the ceiling on his portion of the small-car field has been materially lowered by his competition in the past year. Thereupon, in his distress, Mr. Ford will proceed to do the unorthodox to entice buyers.

He may put out cars virtually on a rental basis, with little or no down payment, stated monthly payments, regular servicing at the lessee's expense, and take back his cars after two years or so for complete rebuilding. Or he may make an attractive concession for the purchase of three Fords consecutively; in other words, if Fords were priced at $500 the third would be billed at about $250, making a bargain of three for $1250. Or after buying a Ford outright a purchaser would be entitled to receive a brand new one every six months on payment of a modest additional sum. The latter proposal, incidentally, is also reported as being under consideration by one of General Motors' medium-price cars.

These speculations ingeniously attack the used car problem. Presumably in a short time the new Fords would include a generous proportion of parts reclaimed from used cars surrendered under the exchange agreements. The public, of course, would have to be educated to the knowledge that a car built of salvage parts is sound, but what better proof could there be of a gear's reliability than to have had it on actual test a year or so? These schemes also presuppose that once a Ford owner always one, but they might give Ford the inside track in establishing his car as the second one in a two-car family.

These speculations also have it that Lincolns will also be offered on easy terms.

Aside from all gossip, the used car problem is receiving serious consideration and the matter of reclaiming and reusing some parts is believed by some to be a possibility not far distant. The next five years, it is predicted, will bring a revolution in motor car merchandising.

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THE Ford Motor Co., it appears, is slowly stepping-up its production. It is now supposed to be turning out between 50 and 100 units daily and in some departments three shifts will be inaugurated soon. The occasional "bugs" that upset the production schedule occur in the manufacture and flow of parts to the assembly line and are not in any way related to the fundamentals of design.

In a quiet way the Ford company has been a heavier buyer of steel than surface indications show. It has released material for 10,000 cars, which will carry it into December. The present basis of light, scattered buying is expected to be supplanted by genuinely heavy orders within the next 30 to 45 days. Strip producers, for example, expect to book 50,000 tons or more from the Ford company late this month or early next.

* * *

DESPITE slight gains in some directions, automobile production as a whole in the Detroit district is tending downward slightly. Buick has curtailed its schedule moderately. Although Chevrolet retail sales in October set a new peak

at 112,064 cars, this reflected more a moving of current models off dealers' floors than a flurry in production. The Chevrolet schedule can be expected to recede until the new models are brought out. Hudson-Essex and Dodge are up a trifle. Hupp with its new six-cylinder model is doing better than in some time. Reo's schedule is bettering last year's considerably. Chrysler output is down slightly. Every seasonal and trade factor points to a moderate settling in production over the remainder of the year.

* * *

BUYING of steel by the automotive industry has been shrinking faster than the aggregate of automotive operations in the Detroit district. This is largely because of inventory taking, which is mandatory under Michigan laws. Almost all of the automotive interests are letting their stocks slide to a minimum. There should be compensation, however, in purchasing for stock once inventory time is past.

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A TRIP through those portions of the Fordson and Highland Park plants of the Ford Motor Co. which are open to the public belies the demise of Model T, so heavy are the operations on spare parts. To prevent any interruption when Model A gets into full swing, all branches are being stocked with spare parts in anticipation of a five-year demand. Radiators, for example, are on a production basis of 2500 units daily.

Scrap Export Banned

Washington, Nov. 8.—According to a recent decision of the king of Sweden and his cabinet, exportation of malleable scrap iron from Sweden is forbidden until Feb. 29, 1928, inclusive, states a report from Consul General John Ball Osborne, Stockholm, made public by the department of commerce. It will probably depend on the subsequent developments in the Swedish iron and steel industry whether the export prohibition will be prolonged after February, 1928, the report states.

While in previous years, exports of scrap iron, as a rule, amounted to only a few thousand tons, having totaled 8716 metric tons in 1925 and 5448 tons in 1926, the quantity of scrap iron shipped from Sweden in 1927 up to the end of August had grown to 30,444 metric tons, more than ten times as large as for the corresponding period of 1926.

New Operating

Companies Formed by Manning, Maxwell & Moore Inc.

New York, Nov. 8.—Organization of two new operating companies by Manning, Maxwell & Moore Inc., brings into new alignment several of the oldest companies in the equipment and steam specialities field. One of the new companies, the Shaw Crane-Putnam Machine Co., merges the Putname Machine Co., Fitchburg, Mass., and the Shaw Electric Crane Co., Muskegon, Mich. The other, incorporated as the Consolidated-Ashcroft-Hancock Co. Inc., combines the Hancock Inspirator Co. and the Hayden & Derby Mfg. Co., both of Boston, and the Ashcroft Mfg. Co. and the Consolidated Safety Valve Co., both of Bridgeport, Conn. The new companies were incorporated in Delaware, with the Manning company sole owner of their stocks.

This latest step was taken to better co-ordinate the diverse and unrelated branches of its business, and will likely have the effect of emphasizing the activities of these subsidiary organizations and placing those of Manning, Maxwell & Moore Inc. in the background. In the future the Manning company will assume much the character of banking engineer for its companies, whose physical properties, it may be added, will be in no way affected by these changes.

Officers of the new organizations, which will have their headquarters at 100 East Forty-second street, the present Manning address, are as follows: Shaw Crane-Putnam Machine Co.: F. J. Baumis, president; F. W. Knowles, vice president and comptroller; F. M. Kreiner, secretary and treasurer, and E. L. Fickett, assistant to the president; Consolidated-Ashcroft-Hancock Co. Inc.: H. D. Carlton, president; W. H. Williston, vice president; C. H. Graesser, vice presiden; F. M. Kreiner, secretary and treasurer; F. W. Knowles, comptroller.

C. A. Moore Jr., president of Manning, Maxwell & Moore Inc., will be chairman of the board of directors of each company. With the exception of W. H. Williston and C. H. Graesser, both vice presidents of the Consolidated company, all officers of the two companies are officials in the Manning company. Mr. Williston was formerly assistant to vice president H. D. Carlton of Manning, Maxwell & Moore and Mr. Graesser works manager at the Ashcroft plant in Bridgeport, a position he will continue to retain.

Officers of the Manning company are unchanged as follows: C. A. Moore Jr., president; H. D. Carlton, vice president; E. M. Moore, vice president; F. J. Baumis, vice president; J. D. Nicklis, vice president; F. W. Knowles, comptroller; and F. M. Kreiner, secretary and treasurer. Mr. Baumis, president of the new Shaw Crane-Putnam organization, was previously president of the Putnam Machine Co., having been elevated to this position earlier in the year.

The Putnam Machine Co., builder of heavy machine tools for industrial and railroad service and special production machinery, was organized 91 years ago, in 1836. The Shaw Electric Crane Co., consolidated with Putnam, is also a pioneer in this particular field of building electric overhead cranes, being organized in 1891, or 36 years ago.

The other newly organized corporation combines veteran companies in their respective branches. The Ashcroft company, was organized 75 years ago; Hancock, 50; Consolidated, 48; and Hayden, 39. Incidentally, the Manning company and its subsidiary companies have a combined age of 425 years. The Manning company was organized 54 years ago.

The supplies department and the Chicago machinery branch office of Manning, Maxwell & Moore Inc will operate as formerly.

Course in Enameling

Ferro Enameling Co., Cleveland, opens an enamelers' training course Dec. 5 for two weeks, with 21 sessions. A special classroom has been equipped and shop work also will be given. The course covers all phases of porcelain enameling, in charge of J. E. Hansen. The number of students is limited by the company.

Asks Lower Rod Rate

Washington, Nov. 8.—A complaint has been filed by the Carnegie Steel Co., Pittsburgh, with the interstate commerce commission against the Pennsylvania railroad in which the firm asks the commission to require application of reasonable rates on steel rods in coils, other than round shaped, from McDonald, O., to Pittsburgh, Carnegie and Economy, Pa. Reparation is claimed.

Chapman Valve Mfg. Co., Indian Orchard, Mass., is running several departments overtime and is booked with orders for 30 to 60 days ahead. American Bosch Magneto Corp. of Springfield, Mass., reports an improvement in orders. Its operations are at full capacity.

Industrial Men in the Day's News

Wesley Pope Sykes, 1927 Howe Medallist, American Society for Steel Treating

ONE of the youngest scientists to have received such a distinguished recognition, he has for the past decade been active in experimental and research problems.

METALLURGY has formed one of his chief subjects of investigation, the working of tungsten metal receiving his closest attention.

QUIET and reserved, his honors have left him undeterred from his scientific pursuits. Recreation is obtained by him principally in the forms of tennis and squash and in reading.

CONFERRING of the Henry Marion Howe Medal for 1927 upon Wesley Pope Sykes brings to him the distinction of being one of the youngest scientists to be so honored. The Howe medal, which Mr. Sykes has been awarded, was established by the board of directors of the American Society for Steel Treating shortly after the death in 1922 of Dr. Henry Marion Howe. Establishment of the medal constituted a tribute to the exceptional work and distinguished achievements which Dr. Howe had attained. He was an honorary member of the society. The medal was awarded Mr. Sykes at the American Society for Steel Treating convention in Detroit in September.

Mr. Sykes has presented many technical papers before the Steel Treating and other societies. His presentation at the Chicago convention in 1926 was entitled "Iron-Molybdenum System," and was the basis for the award. He presented a paper at this year's convention entitled "Carburizing with a Mixture of Natural Gas and Hydrogen." Mr. Sykes also has appeared before the American Institute of Mining and Metallurgical Engineers as a speaker, presenting papers on the "Physical Properties of Metals that Elevate Temperatures" and on the "Iron Tungsten System."

Mr. Sykes was born Oct. 4 1893, and received his early education in the schools of Cleveland. Following elementary and preparatory education he matriculated at Case School of Applied Science, Cleveland. He was graduated from that institution in 1916 with a degree of bachelor of science in metallurgical engineering. In 1920 he was honored by Case School in its conferring upon him the degree of metallurgical engineer in recognition of the work he had done in the field of metallurgical engineering and research. He submitted a thesis entitled, "Effect of Temperature, Deformation and Grain Size on the Tensile Properties of Metals" in attaining the degree.

For his recreation Mr. Sykes usually indulges in tennis during the months when weather permits. In the winter season he obtains his exercise in the form of squash. Reading probably may be claimed as his hobby, as he spends considerable time in that pursuit on subjects other than technical. General literary works provide most of his reading relaxation.

In addition to his membership in the American Society for Steel Treating, Mr. Sykes belongs to the American Institute of Mining and Metallurgical Engineers and to the Cleveland Engineering society. He is a member of the University club, Cleveland, and has shown an active participation in the alumni activities of Case School. He has appeared before the Metallurgical club of that institution several times in speaking on metallurgy.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

JOHN WARD has been elected treasurer of Edgar T. Ward's Sons Co., New York, succeeding Frank L. Brown, whose death was noted in the IRON TRADE REVIEW issue of Oct. 20.

Other officers of the company are: President, E. L. Parker; chairman of the board of directors, A. J. Lockwood; secretary, W. B. Lockwood; first vice president, E. P. Hall; second vice president, T. H. Booth.

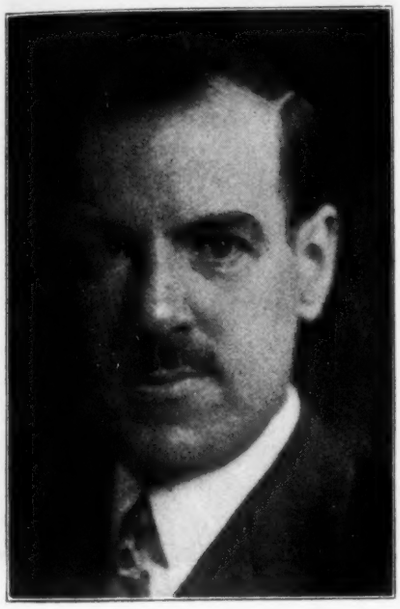


Photo by Blank-Stoller Inc.
FRANK J. BAUMIS

* * *

F. J. Baumis, vice president of Manning, Maxwell & Moore Inc., New York, has been made president of the Shaw Crane-Putnam Machine Co., manufacturer of cranes and machine tools, recently organized as subsidiary of the Manning company.

* * *

F. J. Lewis, chairman of F. J. Lewis Mfg. Co., Chicago, has been elected a director of the Combustion Engineering Corp., New York.

* * *

Waddill Catchings, member of the board of directors of the Underwood Typewriter Co., New York, has resigned.

* * *

Theodore Pattison, resident engineer of the Chesapeake & Ohio railroad, has been advanced to assistant division engineer, with headquarters at Chillicothe, O.

* * *

R. D. Faris has been appointed Cleveland district representative of Rollway Bearing Co. Inc., Syracuse, N. Y., and will have his headquarters in the Leader building.

* * *

H. B. Bibb has been made sales manager of the Graybar Electric Co., New York. E. W. Thurston has been made assistant telephone sales manager of the company.

* * *

J. E. Perkins, president of the Farmers Loan & Trust Co., New York, has been elected a director of the Studebaker Corp., South Bend, Ind., succeeding N. R. Feltes, resigned.

* * *

A. E. R. Turner, formerly Cleveland district sales manager of the Niles Tool Works Co., Hamilton, O., has become the Montreal district manager of John Bretram & Sons Co., Ltd., Dundas, Ont.

James D. Allan, associated with the sales office of the Niles company in Cleveland, has been given temporary charge of the office.

* * *

Thomas F. Kelly has been made sales manager of the Maring Wire Co., Muskegon, Mich., maker of magnet wire. He had been for eight years prior to January, 1927, sales manager for the American Enameled Wire Co. of Muskegon.

* * *

James F. McCrory Jr. has resigned his connection with Eaton, Rhodes & Co., Cincinnati, after having been for eight years assistant to Joseph G. Walton, resident manager at Pittsburgh, to take charge of the coke sales department of the H. H. Landay Co. Inc., Book building, Detroit.

* * *

E. B. Mallory, formerly manager of the radio department of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., who has been elected vice president and a member of the board of directors of the Climax Engineering Co., Clinton, Iowa, maker of engines, etc., a subsidiary of the Dulany Trust, Chicago, began his career with the Westinghouse company in 1903. Mr. Mallory also has been elected president and member of the board of the Climax Electrical Refrigeration Co., maker of domestic refrigerators, etc.

* * *

Edwin H. Lundgren, elected vice president and sales manager of the Combustion Engineering Corp., New York, maker of grates, stokers, etc., as announced briefly in IRON TRADE REVIEW, last week, has been actively identified with the stoker business since 1912. His association with the Combustion corporation began in 1921, when he resigned as vice president and chief engineer of the Frederick Engineering Corp., Frederick, Md., to go to New York. He was general sales manager of the Combustion corporation at the time of his recent advancement. Mr. Lundgren is a graduate of the Swedish Government Technical college and author of numerous technical articles.

EDWIN H. LUNDGREN

* * *

M. C. Morrow has been appointed sales manager of the merchandising department of Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

F. R. Kohnstamm has been appoint-

ed assistant sales manager of the merchandising department of Westinghouse company.

George T. Kunklin has been made district merchandising distribution manager of the northeastern district with his headquarters in New York, for the Westinghouse company.

George Bailey, formerly assistant to general manager of the merchandising department of the Westinghouse company, has been made district merchandising distribution manager at San Francisco for the Pacific coast district.

* * *

H. D. Carlton. a vice president of Manning, Maxwell & Moore Inc., New York, has been made president of Con-

H. D. CARLTON

solidated-Ashcroft-Hancock Co. Inc., maker of valves, machine tools, etc., recently organized by the Manning company.

* * *

Edward M. Lavino, president of E. J. Lavino & Co., Philadelphia, Pa., ores, metals etc., sailed for Europe Nov. 5 to be gone about six weeks.

* * *

Frank N. Hoffstot, president, Pressed Steel Car Co., Pittsburgh, returned Nov. 1 after a two months' trip to Europe.

* * *

J. R. Simpson, Foreign Sinclair Consolidated Oil Co., and R. B. Flersher, Marine Trust Co., Buffalo, have been elected directors of the Pierce-Arrow Motor Car Co., Buffalo.

* * *

Ralph M. Powers has been elected president of the National Steel Tank & Mfg. Co., Bradford, Ill. He was formerly with the Kewanee Boiler Co., Kewanee, Ill.

* * *

Peter Igoe, of Igoe Bros., Brooklyn, N. Y., and Newark, N. J., has been elected vice president of J. K. Larkin & Co., New York, iron and steel products distributor.

* * *

Harry E. Matthews, assistant manager of the Charlotte, N. C., office of the Morse Chain Co., has been made manager, succeeding George W. Pritchett, who died last September.

* * *

Howard E. Sneathen, director of the commercial car and truck sales of Dodge Bros., Detroit, has been elected to membership on the motor truck committee of the National Automobile Chamber of Commerce.

* * *

Windsor T. White, chairman of the board of directors of the White Motor Co., Cleveland, and Thomas A. White, vice president, resigned as officers Nov. 4, although remaining members of the board of directors.

* * *

Edgar McNall, Cedar Rapids, Iowa, newspaper man for the last eight years, has been made advertising manager of the Speeder Machinery Corp., that city, maker of shovels, cranes, etc.

* * *

Henry Ervin, general manager of MotoMeter Co. of Canada Ltd. has been made general sales manager of the MotoMeter Co. Inc., Long Island, N. Y., maker of temperature indicators.

Earle V. Hennecke, vice president of the MotoMeter Co. Inc., has resigned.

* * *

O. L. Arnold, formerly branch manager and zone supervisor of the Ford Motor Co. Chicago division, has been made vice president of the General Motors Truck Co., subsidiary of the Yellow Truck & Coach Mfg. Co., Pontiac, Mich. Mr. Arnold had been with the Ford interests for 17 years.

* * *

S. S. Holmes has been appointed works manager of the Western Electric Co.'s plant at Kearny, N. J., succeeding Robert C. Dodd who has been appointed assistant to C. G. Stoll, vice president of the company in New York. Mr. Holmes had been assistant works manager of the company's Hawthorne plant at Chicago.

* * *

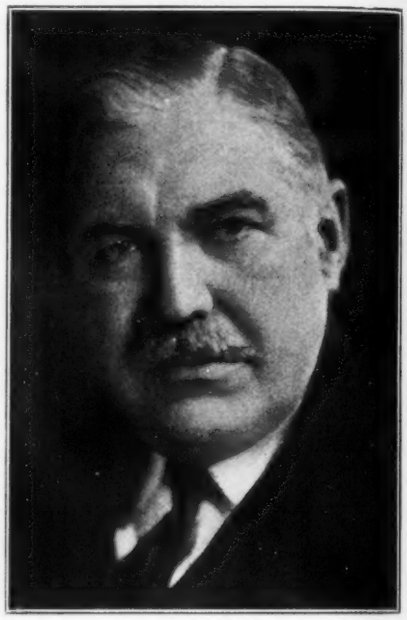
Thomas F. Peterson, formerly cable engineer of the Brooklyn Edison Co., has joined the American Steel & Wire Co., at Brooklyn, N. Y., as cable engineer in the electrical and wire rope department. His new duties will be mainly those of a cable consultant. Mr. Peterson is a graduate of Leland Stanford university.

* * *

Granville P. Rogers has been appointed managing director of the National Electrical Supply Jobbers' association, Chicago. For the past two years Mr. Rogers has been directing the Artistic Lighting Equipment association, New York. It is planned shortly to move general offices of the jobbers association to New York.

* * *

C. A. Moore Jr., president of Manning, Maxwell & Moore Inc., New York, is chairman of the board of directors of the Shaw Crane-Putnam



C. A. MOORE JR.

Machine Co. and the Consolidated-Ashcroft-Hancock Co. Inc., crane and machinery manufacturers recently organized by the Manning company.

* * *

L. E. L. Thomas has become identified with Freyn Engineering Co., Chicago, as vice president in charge of foreign business. After a varied construction experience, Mr. Thomas became chief draftsman of the Youngstown Sheet & Tube Co., Youngstown, O., and in 1916 was made chief engineer of the Gary Tube Co. in connection with a plant to include docks, blast furnaces, steelmaking capacity, rolling mills and tube mills. With suspension of that work, due to the war, Mr. Thomas was appointed chief engineer of the United States Steel Corp. ordnance department, which began a plant for the government for the production of large guns and projectiles. On aban-

(*Concluded on Page* 1212)

British Iron Market Is Weaker

Improvement Not Sustained, Production Declining Again—Continental Furnaces Shipping Product to Scotland—Steel Demand Comprised of Small Orders—Tin Plate Sales Larger

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Nov. 8.—Improvement in the pig iron market noted in recent weeks is not being sustained, as shipments are receding and prices are easier. New orders are small. Two British blast furnaces have been blown out, while shipments from the Continent to Scotland are reviving. Domestic consumers are attempting to obtain an equalization of prices on the basis of recent lower export figures. Pig iron exports from the Middlesbrough district in October totaled only 8892 tons.

Steel demand is more active but restricted to small tonnages. Inquiries for structural material are practically suspended, although fabricators are confident business is only delayed. The London underground is planning a £2,000,000 reconstruction program for execution early next year.

Steel sales for foreign shipment are small, except for round tonnages of semifinished material booked by mills in South Wales. Continued improvement is noted in tin plate and more mills are restarting. Galvanized sheets are weaker. Makers of tool steel are busy with export orders. Vickers Ltd. and the Armstrong, Whitworth Co. are merging their armament, shipbuilding and heavy steel departments.

Continental iron and steel prices are firming up and the outlook is improving.

British Iron and Steel Market Gains Steadily

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Oct. 28.—(*European Staff Service*)—Pig iron continues to show improvement. At last buyers of pig iron have realized the wisdom of increasing orders, and in most cases have covered requirements well into the new year. The recent advances are maintained, and in addition to the blast furnaces started last week in the Middlesbrough area the Wellingborough Iron Co., Northampton, has put an additional furnace in blast.

However, no further expansions have taken place but Barrow considers demand sufficient to absorb present output and stocks have disappeared. Among new contracts are orders for ferromanganese and high class iron from America and the Continent. Scotland finds difficulty in disposing of the output of its 32 furnaces, but there is no talk of further restriction. The price of furnace fuel is satisfactory to furnacemen and any change in the price of pig iron is likely to be upward. Foreign pig iron has ceased to offer attraction and October exports are likely to show substantial improvement over September.

Sterling $4.87

The feature of steel business is the small tonnages placed, frequently much below a ton and often amounting to only a few hundredweight, yet the aggregate has improved and most mills are able to work up to 80 per cent of capacity. The most promising department is shipbuilding, which has placed further work for plate mills, but railways make a good second, covering a wide range of useful material, and the foreign railways are well in evidence. For example, a heavy consignment of rails was sent this week from Barrow to Bombay. Many locomotive orders are being given out and builders of rolling stock are daily receiving substantial additions to their

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, November 7	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		£ s d		£ s d		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$15.83	3 5 0*	$14.61	3 0 0	$14.61	3 0 0	$14.61	3 0 0
Basic	.....	.....	14.61	3 0 0	14.61	3 0 0	14.61	3 0 0
Basic-bessemer	17.65	3 12 6†	13.88	2 17 0	13.88	2 17 0	14.61	3 0 0
Hematite, Phosphorus 0.02-0.05	17.65	3 12 6	21.88	555*	.....	.....	17.05	3 10 0
SEMIFINISHED STEEL								
Billets	$28.00	5 15 0	$20.70	4 5 0	$20.70	4 5 0	$21.18	4 7 0
Wire rods	47.48	9 15 0	26.79	5 10 0	26.79	5 10 0	26.79	5 10 0
FINISHED STEEL								
Standard rails	$37.74	7 15 0	$31.05	6 7 6	$31.05	6 7 6	$31.05	6 7 6
Merchant bars	1.58c	7 5 0	1.05c	4 15 0	1.05c	4 15 0	1.02c	4 13 0
Structural shapes	1.55c	7 2 6	1.00c	4 8 0	1.00c	4 8 0	1.01c	4 12 0
Plates, ship, bridge and tank	1.71c	7 17 6	1.32c	6 0 0	1.31c	5 19 0	1.32c	6 0 0
Sheets, black, 24 gage	2.39c	11 0 0	2.16c	9 16 0	2.16c	9 16 0	2.86c	13 0 0
Sheets, galvanized, 24 gage, corrugated	2.96c	13 12 6	3.96c	18 0 0	3.71c	2,850*	3.74c	17 0 0
Bands and strips	2.28c	10 10 0	1.16c	5 5 0	1.16c	5 5 0	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.60c	7 5 0	1.60c	7 5 0	1.60c	7 5 0
Galvanized wire, base	3.04c	14 0 0	2.15c	9 15 0	2.15c	9 15 0	2.09c	9 10 0
Wire nails, base	2.83c	13 0 0	1.76c	8 0 0	1.76c	8 0 0	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.26	0 17 6	.....	.....	.....	.....	$ 6.82	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.44	3 7 6	$16.51	420(2)	$17.10	615	$17.02	74
Basic pig iron	.....	.....	17.88	455(1)	15.71	565	19.32	84
Furnace coke	3.17	0 13 0	6.09	155	5.14	185	4.95	21.50
Billets	28.00	5 15 0	19.26	490	21.96	790	25.88	112.50
Standard rails	1.74c	8 0 0	1.40c	775	1.43c	1,100	1.46c	140
Merchant bars	1.63c	7 10 0	1.00c	545	1.11c	855	1.40c	134
Shapes	1.66c	7 12 6	1.00c	520	1.10c	845	1.37c	131
Plates, ship, bridge and tank	1.82c	8 7 6	1.26c	700	1.43c	1,080	1.55c	149
Sheets, black, 24 gage	2.50c	11 10 0	2.32c	1,290	2.21c	1,700	2.29c	220
Sheets, galvanized 24 gage, corrugated	2.98c	13 15 0	4.05c	2,250	3.71c	2,850	3.65c	350
Plain wire	2.12c	9 15 0	1.62c	900	2.15c	1,650	2.03c	195
Bands and Strips	2.28c	10 10 0	1.21c	670	1.29c	995	1.61c	154

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longway. British export furnace coke £0 13s 0d ($3.17) f. o. b. Ferromanganese £18 11s 3d ($90.40) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($73.05) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

well furnished order books. Work is assured for this department well through 1928. Little new business is coming out for structural work, and there is too much ground for the general belief that foreign steel is invariably being used. It is quite true that the Continent cannot give prompt delivery, but prices are much lower than English and it is still possible to buy almost any standard size of angle or section from stock yards in London and elsewhere. Engineers strongly complain of the severe price cutting which makes quotations in many cases nothing less than a farce. Yet some engineers restrict their steel to British manufacturer, despite the fact that even when allowance is made for the rebate they have to pay something like £1 ($4.87) per ton above the imported article.

The busiest department is that of cast iron pipe for which big contracts are arranged, especially for the largest diameters, and leading foundries, such as the Stanton Iron Co., are making substantial increases to capacity. Heavy foundries producing rolls and mill furniture are becoming busier to meet demands of the more active steel mills.

There are at last signs of improvement in the tin plate trade. Something like a million boxes have been ordered in the South Wales area from the Continent and South America. But many mills are idle and the price of 18s ($4.39) and under is said to be below cost of production. A meeting of tin plate makers at Swansea this week recommended an amalgamation of all interests, but in view of the wide varieties of plant and the varying ability to make profits the solution of the problem will be difficult. It is hoped that the more satisfactory remedy of trade recovery may continue.

The galvanized sheet trade is passing through the worst depression of the year. The standard price has fallen to £13 12s 6d ($66.35) but £13 10s ($65.74) is frequently accepted, and even at this reduction it is impossible to get more than partial employment. There is a decided falling off in demand from China and the Malay states owing to the great reduction in rubber and tin values.

The chain and anchor trade, on which the Black Country largely depends, has not yet realized benefit from the shipbuilding recovery, although a fair amount of best iron is being called for. Much use is being made of foreign wire rods which are 15s ($6.08) below the home price. Belgian billets have stiffened a little, up to £5 4s ($25.32). Large quantities of tube strip are coming from Germany to tube works in Staffordshire and Scotland, and the motor trade which has entered upon a boom since the show at Olympia is taking large quantities of light gages from Germany.

German Output Lower

BERLIN, Oct. 22.—(*European Staff Service*)—Germany's September pig iron output included 680,222 tons of basic bessemer, 208,325 tons of ferromanganese and ferro-alloys, 108,828 tons of foundry, 102,005 tons of hematite, 4076 tons of direct castings and 1197 tons of gray forge pig iron.

Production of steel ingots and castings in September consisted of 726,066 tons of basic open-hearth, 584,676 tons of basic bessemer, 14,829 tons of acid open-hearth, 14,215 tons of crucible and electric and 3455 tons of welding steel. The following table gives figures for the first nine months of 1927, compared with the monthly averages of the three preceding years and 1913 in metric tons:

Mon. ave.	Furnaces last day	Pig iron	Steel ingots and castings	Finished steel
1913*	.....	909,640	980,700	970,240
1924	.....	651,020	819,605	681,195
1925	.....	848,060	1,016,210	853,840
1926	.....	803,620	1,028,780	861,445
1927				
Jan.	115	1,059,798	1,308,251	1,043,217
Feb.	113	966,909	1,233,071	951,994
March	111	1,085,859	1,415,083	1,100,728
April	113	1,051,872	1,288,400	1,009,143
May	112	1,129,802	1,378,289	1,089,779
June	113	1,067,583	1,327,976	1,062,529
July	115	1,108,893	1,361,785	1,049,539
Aug.	115	1,115,503	1,426,253	1,129,837
Sept.	114	1,104,653	1,371,364	1,122,130

*In present boundaries.

Belgian Output Declines

Brussels, Oct. 25—(*European Staff Service*)—Pig iron production in Belgium in September was slightly below August and on ingots and castings was the lowest for the present year. Statistics in metric tons follow:

Mon. ave.	Coke	Act. Furn.	Pig iron	Steel ingots and castings	Finished steel
1913	294,000	....	207,055	205,550	154,820
1924	351,380	....	286,995	239,585	177,050
1925	342,645	....	211,875	212,380	164,940
1926	413,000	....	283,270	281,160	231,810
1927—					
Jan.	435,820	55	316,430	312,590	259,040
Feb.	393,870	55	292,620	296,830	245,230
Mar.	432,880	55	314,340	314,625	269,740
Apr.	440,100	54	309,920	301,070	237,700
May	461,050	54	318,790	321,140	252,180
June	447,690	54	302,010	299,770	242,230
July	461,810	55	319,650	314,140	246,830
Aug.	469,420	55	316,690	325,690	254,880
Sept.	455,800	55	308,800	289,870	257,190

Belgians Await Export Comptoir

BRUSSELS, Oct. 28.—(*European Staff Service*)—In view of the interruption which has taken place in negotiations for formation of an international entente in export sales of semifinished steel and beams, both buyers and sellers of iron and steel are maintaining a reserved attitude. Undoubtedly the fact that negotiations are not running as smoothly as had been anticipated is a detrimental influence and does not assist in maintaining firm prices. It was confidently expected that the wire rod syndicate would be definitely formed following the meeting which was to take place Oct. 17, and that an advance would be made in formation of the other comptoirs. The reason the meeting was postponed is ascribed to the fact that two of the leading Belgian concerns, Ougrée-Marihaye for one, demanded a quota for the sales of semifinished steel which is considered exaggerated by the other parties. As regards the wire rod syndicate, the recent breaking up of the entente between Belgian, Luxemburg and German wire mills caused a setback. Apparently there also are differences of opinion between the French and Germans in regard to the Lorraine-Luxemburg agreement. In the absence of precise information as to what actually is going on behind the scenes, the market is filled with uncertainty.

Franc—2.78c

There is no agreement between German, French and Belgian pig iron producers. A further difficulty in arriving at a result is the absence of British participation in the negotiations. The domestic price of foundry pig iron in Belgium remains at 610 to 620 francs ($16.95 and $17.20) exworks, and hematite is quoted at 670 francs ($18.60). Export business is dull and prices continue low, foundry pig iron being sold at £2 18s ($14.05) f.o.b. Antwerp. Low prices also prevail in semifinished steel, sheet bars being offered at £4 6s ($20.80) and 2-inch billets at £4 3s to £4 4s ($20.10 to $20.40). Blooms are as low as £3 17s ($18.65). These quotations are for basic bessemer steel and are only given as an indication, as there is little business, owing to absence of British inquiries.

Prices for merchant bars vary according to makers. Clabecq is reported to have quoted £4 12s 6d ($22.45) for certain flat sizes, whereas the sales organization Sogeco refuses to take business under £4 15s ($23). New business in this department is practically absent. The Longwy mills in France are said to be prepared to take orders for beams at from £4 7s 9d to £4 8s ($21.25 to $21.30), according to size; they also are offering British sizes at £4 9s to £4 9s 3d ($21.55 to $21.60). The Providence works also are out for orders. The price of bright wire is around £6 12s 6d ($32.15). It is reported that a contract for 1000 tons of wire rod has been passed with China at £5 10s ($26.60) f.o.b. Antwerp, with a rebate of 6s ($1.45) per ton at the time of payment. The actual price is that fixed by agreement between the wire rod makers, but for orders of between 1000 and 2000 tons the rebate should not exceed 1s 6d (35 cents) per ton, these prices being fixed for export to overseas markets; other prices are agreed to in respect of sales to Italy, Switzerland, Belgium and Holland.

Plates and sheets are quiet. Plates are £6 ($29.10); ⅛-inch sheets £6 4s 6d ($30.203 and ⅛-inch sheets £6 13s ($32.25).

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

INDUSTRIAL BROWNHOIST CORP., Cleveland, recently formed by the merger of the Brown Hoisting Machinery Co. and Industrial Works, has made formal announcement of the consolidation. General offices will be in Cleveland and plants will be operated at Cleveland and Elyria, O., and Bay City, Mich. Officers are as follows: President, A. C. Brown; vice presidents, Melvin Pattison, H. H. Perry, H. C. Steinbrenner; general secretary, E. S. Clark; treasurer, A. J. Copeland; G. L. Harman is sales manager. District sales managers are as follows: New York City, James Shearer; Philadelphia, W. L. Brown; Pittsburgh, H. C. Knight; Detroit, B. W. Beyer; Cleveland, H. E. Hayes; Chicago, C. H. White; New Orleans, W. T. Simpson; San Francisco, H. D. Wright; Bay City, Mich., Benjamin Dixon.

* * *

C A. LINDSTROM, 5702 Wentworth avenue, Chicago, manufacturer of wood and metal patterns and models, has added a line of permanent molds for nonferrous castings.

* * *

SHEPARD ELEVATOR CO., Cincinnati, has bought the plant and business of the John J. Brice Foundry Co., an adjoining property. Operation of the foundry will be continued under the same management. The elevator company is a large user of castings.

* * *

WALKER REFRIGERATION CO., Detroit, is moving its plant to Port Huron, Mich., where it has leased the former plant of the Bohn Aluminum & Brass Co. It will manufacture a line of electric refrigerators. Harry G. Walker, Detroit, is president, and Morton Robertson, Port Huron, is treasurer.

* * *

JI. CASE THRESHING MACHINE CO., Racine, Wis., has effected an increase in the sales of its tractor by adapting the machine to industrial purposes by the design and application of new accessories. The tractor, originally designed for farm use has been given rubber tires, an optional set of metal wheels for pulling in road dirt, a special spring seat, a derrick for hoisting heavy packages, and bumpers, with a view of use in railroad terminals, and industrial plants and yards. The machine with its special equipment turns in a radius of 10 feet and is rated at 12 horsepower at the drawbar and 20 horsepower at the belt. There is a belt pulley and a quick acting, throttling governor which regulate the speed to meet any variations in the weight of the load.

* * *

WEBER ENGINE CO., Kansas City, Mo., is preparing to enter industrial markets with its semi-diesel oil engine. This has been sold exclusively in the oil fields in the past. J. Redfern, until recently sales manager of the Power Mfg. Co., Marion, O., will be in charge of the industrial sales department.

* * *

ALABAMA POWER CO., a subsidiary of the Southeastern Light & Power Co., will build a steam electric power plant on the Warrior river in the coal fields of Walker county, at Gorgas, Ala. The first unit will have capacity of 50,000 kilowatts and plans are for an ultimate 200,000 kilowatts, as demand for power increases.

* * *

PACIFIC COAST STEEL CO., Seattle, has undertaken an extensive improvement, involving a change in the method of handling scrap. Locomotive cranes have heretofore been employed but a crane runway is being constructed on which overhead electric cranes will be used. Two 100-foot span cranes are planned but this equipment has not yet been purchased. The new system will not be completely in use for six months but it is expected to greatly facilitate the handling of material.

* * *

HARTFORD COKE CO., Hartford, Conn., a subsidiary of the Koppers Co., has been incorporated, with $100,000 capital. It is estimated the capital is to be increased to $7,500,000 with no par value shares, and that the name of the company will be changed to the Connecticut Coke Co. The company is erecting a $9,000,000 plant at New Haven. Hugh Smith, Pittsburgh, is president; A. McArthur, New Haven, secretary, and S. T. Brown, Pittsburgh, treasurer. The stockholders are Mr. Smith, Mr. McArthur, Joseph F. Berry, Hartford, Conn., and the Koppers Co.

* * *

LAMPMAN TOOL Co., Angola, Ind., and the armature winding business of John O. Havens, Indianapolis, which has been combined to form the Lampman Mfg. Co. Inc., Huntington, Ind., will move their equipment for installation in the new plant at Huntington in about two weeks. Directors of the new company, which is incorporated at $75,000, include Herman Martin, George J. Bippus, and Walter H. Ball. Mr. Lampman will be in charge of production and Mr. Havens will be manager and head of the sales force.

* * *

FILER & STOWELL CO., Milwaukee, is shipping a large order for power plant machinery to operate a large sugar mill at Punta, San Juan, Cuba. The shipment consists of three corliss engines, two of 1800 and one of 500 horsepower, valued at about $60,000. The large engines have 42 x 60-inch cylinders and the flywheels are 22 feet in diameter.

* * *

FULTON IRON WORKS CO., St. Louis, with its subcontractors, has completed designs for a $2,000,000 sugar central near Manila, P. I. The plant, which will have a nominal capacity for handling 3300 tons of cane daily and producing 380 tons of unrefined sugar, will be in operation by October, 1928. The maximum capacity will be twice these figures and make it equal to the largest centrals in Cuba. The General Electric has the subcontract for the turbo generators, the lighting and all electric apparatus and the United States Steel Corp. holds the subcontract for the all-steel and glass buildings to house the machinery.

"The Significance of the Elasticity and Thermal Expansion of Fireclays with Reference to the Spalling of the Fired Product," is the title of technologic paper No. 4 just issued by the American Refractories institute, 2202 Oliver building, Pittsburgh. The author of the paper is R. F. Geller, chief, refractories section, bureau of standards, Washington. Copies may be secured from the institute for 50 cents each.

Obituaries

R SPURRIER HOWARD-SMITH, 67, for many years treasurer of the Link-Belt Co., Chicago, died Oct. 29. He was a graduate of Columbia university New York, and the University of Tennessee, Knoxville, Tenn., joining the Link-Belt Engineering Co. in 1883. He was vice president and treasurer of that company until 1905 when he was made treasurer of the Link-Belt Co.

* * *

George S. Burdick, 48, manager of the Minneapolis branch of the Allis-Chalmers Mfg. Co., Milwaukee, equipment manufacturer, died Nov. 3.

* * *

Frank M. Sears, secretary-treasurer Eckels-Nye Steel Co., Syracuse, N. Y., died in that city recently, aged 58. He had been at one time with the Sweet's Steel Co., Williamsport, Pa.

* * *

Fulton I. Hall, vice president of the Suplee Biddle Hardware Co., Philadelphia, died at his office Nov. 2. Mr. Hall entered the employ of this company as an office boy 42 years ago.

* * *

Herman W. Oster, 69, founder of the Oster Mfg. Co., Cleveland, machine and tool manufacturer, died recently. He was born in St. Louis and went to Cleveland when four years old.

* * *

Fred E. Norman, 37, sales manager of the Oliver Iron & Steel Co., Pittsburgh, died Nov. 3 in that city. He was a member of many associations, including the American Institute of Electrical Engineers and the Association of Railway Electrical Engineers.

* * *

Harry L. Brown, secretary of the Ohio Brass Co., Mansfield, O., died recently following an operation. He joined the brass company after ten years with the McGraw-Hill Publishing Co. and was a graduate of the University of Michigan, Ann Arbor, Mich.

* * *

John F. Wade, formerly superintendent of the Bristol Brass Corp., Bristol, Conn., and last year re-elected mayor of that city for his third term, died Nov. 7. He was a director of the Bristol Trust Co. and represented the New Departure Mfg. Co. in Germany, before the war. Mr. Wade also had been superintendent of the Berlin, Germany, plant of the New Departure company.

* * *

J. M. Jones, president of the Eastern Rolling Mills Co., and the Baltimore Tube Co. Inc., Baltimore, died in that city Nov. 1, aged 57. He was born in Wales, coming to this country 35 years ago. He built the sheet and tin plate mill at Baltimore, now owned by the Bethlehem Steel Co.

* * *

Clarence E. Cloud, 55, vice president of the Louisville Tin & Stove Co., Louisville, Ky., died Oct. 25 at his home in that city. He had been an executive of the Stove company for 10 years, becoming associated with it 33 years ago as a clerk. Later he was made buyer, and then was promoted to vice president.

* * *

Charles L. Nichols, well-known structural engineer, died recently at his home in Bogota, N. J., aged 63. Mr. Nichols was graduated from Norwich university, Northfield, Vt., in 1886, and was structural engineer in charge of numerous important projects, including the New York Stock exchange, the Hotel Belmont, New York and the Prudential Insurance buildings in Newark, N. J.

* * *

Albert Champion, president of the A. C. Spark Plug Co., Flint, Mich., who died Oct. 27 in Paris, France, founded that company 22 years ago, with W. C. Durant. He had been a world's champion bicycle racer, as well as an automobile racer before he went into manufacturing. Mr. Champion was born in Paris, April 2, 1878 and was employed by a bicycle manufacturer at the age of 12. He has been creator of a number of inventions.

* * *

Gerard Albert Muntz, 63, died at his home, Tiddington House, near Stratford-on-Avon, England, recently. Sir Gerard, the eldest son of the late Sir Philip Muntz, was educated at Harrow, Victoria college, Manchester; Neuwied, Germany, and King's college, London. He then became associated with the Muntz Metal Co., and was managing director and consultant engineer from 1896 to 1921. He was chairman of the nonferrous metal committee of the board of trade in 1916, and of the department of scientific and industrial research in the same year. Sir Gerard had been a member of the British Nonferrous Metals Research association since 1920.

Men of Industry

(*Concluded from Page* 1208)

donment of that project after the War, he resumed his former position with the Gary Tube Co. In 1920 he became chief engineer of the Inland Steel Co., Indiana Harbor works.

* * *

George T. Birch, recently connected with the home office of R. H. Beaumont Co., Philadelphia, skip hoists etc., has been transferred to its Detroit office, 901 Kresge building, and will act as district manager of that territory.

* * *

Ralph W. Wiggins, formerly production superintendent, has been appointed manager of the Buffalo plant of the Chevrolet Motor Car Co., succeeding W. E. Davis, recently transferred to General Motors Corp. Canadian plant at Oshawa, Ont.

* * *

Joel Ecklund, who has been made a sales engineer of the Erie City Iron Works, Erie, Pa., is a graduate of Armour Institute of Technology and has had considerable experience in the industry. He has been associated with Allis-Chalmers Mfg. Co., Milwaukee, and United States Gypsum Co., previous to his present connection.

* * *

Joshua F. Hunter, safety inspector at the Homestead steelworks of the Carnegie Steel Co., Pittsburgh, since October, 1916, has been appointed general safety inspector of the company to succeed Adam W. Slater, whose death was announced last week. Mr. Hunter will have his headquarters in the general offices, Carnegie building, Pittsburgh. Mr. Hunter was born in Philadelphia in 1884, and attended the Cheltenham Military academy, then at Ogontz, Pa. Later he attended Lafayette college, graduating in 1906 with the degree of civil engineer. He was assistant supervisor of the Pennsylvania railroad at Columbia, Pa., Camden, N. Y., and Perrysville, Md., resigning in October, 1916, to take up safety inspection work at the Homestead steelworks.

Arms manufacturers at Springfield, Mass., are more active. The Smith & Wesson plant, idle for several months, has resumed with 500 employes.

Machinery

Market Continues to Improve but Slowly—Buying Is Well Scattered—Automobile Industry Cutting Little Figure

DEMAND for machine tool and shop equipment unmistakably is on the upgrade, although the improvement steps up in small increments. A most hopeful indication is that the buying is wide spread if not for large amounts. Railroads are inquiring a little more heavily but some of them apparently are seeking information for budget purposes. Very little is being done in the automotive line. It is figured that releases of the Ford Motor Co. shortly will improve sales particularly in the Detroit and Cleveland territories. Manufacturers report fair inquiries but find a disposition for buyers to postpone action. Lathes, drilling machines and grinders appear to be most active. Sales of cranes are slow and inquiries light.

New York, Nov. 8.—Machine tool demand is starting off the new month here more actively. Not only is there somewhat better inquiry, but orders are more numerous, and in at least two or three cases orders have been sizable. Dealers report a particularly improved demand for lathes, drilling machines and grinders. Sellers also report good business in sheet metal and iron working equipment. General Electric Co. continues to inquire for equipment for Schenectady, N. Y., coming in the market during the past week for fully 10 or 12 machine tools. New York Central Railroad has added four or five miscellaneous tools to its pending list, which now involves fully 20 or 30 machines.

Worcester, Mass., Nov. 8.—Tool buying here shows an improvement over last month and a year ago. Several automobile interests are taking a limited list of machines and the textile industry is doing still better in buying. Grinding machinery is active and bench and small tools continue to improve. The long expected improvement appears at hand.

Boston, Mass., Nov. 8.—Whatever activity there is in machine tools consists of single machines and these are of little consequence. The same quietness of the past fortnight continues and there is not the semblance of an improvement coming. While several old inquiries are still hanging over the trade and are believed to be active the time for their closing is uncertain. The continued dullness is ascribed to the fact that the stepping up in business that was anticipated by machine shops is not materializing and for this reason little inclination is shown to close up on inquiries.

Pittsburgh, Nov. 8.—More activity in the machine tool trade quickens the hopes of sellers that the wind-up of the year will in a measure make up for the famine rations under which they have been feeding for some time. More inquiries are out from manufacturers who are piecing out their equipment to make their shops more efficient by filling up the gaps. One bought a large motor-driven turret lathe; another purchased a 4-foot radial and something of this kind is being done every day. Purchases started by the Sharon Steel Hoop Co., as noted in last week's issue, continue, a 16-inch shaper and one or two lathes having been closed this week. Action on the remainder of its needs is postponed. Westinghouse Electric & Mfg. Co. bought two small machines but a large hammer and possibly other equipment will be moved here from Philadelphia. A list from the Avalon, Pa., board of education includes five or six woodworking tools and a drill press as well as a grinder. Action on the Norfolk & Western railroad's list of 100 or more tools will not take place until late in the month after tabulation and compilation of bids. A fabricating shop will take early action on four cranes, and Youngstown Sheet & Tube Co. will buy a power house crane for its turbine room.

Cleveland, Nov. 8.—Some small improvement is noted in this territory, but sales are mostly for one or two tools at a time. General manufacturing is providing the bulk of the trade with the automobile industry practically out of the picture. It is believed, however, that releases on parts by the Ford Motor Co. will spur activity in this district. Some gain on this score already is noted. Used tools are moving well and in slightly better demand than new.

Chicago, Nov. 8.—Sales of an increased number of single tools from a widely distributed demand feature the machine tool market in this district. The volume of business shows a marked gain within the past month. Owing to the closing of a few heavy industrial lists in this territory, October made a good showing and the rate of activity is holding. Union Pacific and several other railroads have asked for figures in estimating budgets. Burlington is inquiring for a 52-inch car wheel lathe, flue welding equipment and several other tools, and Duluth, Missabe & Northern has asked bids on about 15 items, some of which will be placed through local dealers and the remainder to be bought in Minneapolis. Among the items is a 42-inch shaper, flue shop equipment, lathes and drills. It is understood a shaper manufacturer has readjusted prices by which his line is reduced about $25 on each item. Among railroads expected to close on inquiries that have been pending are the Monon, for its Lafayette, Ind., shops, and the Indiana Harbor Belt Line railroad for a shaper and lathe. The market is heavy in used tools that have come out in recent months.

CRANE ORDERS PLACED

Among single orders were: 5-ton 2-motor overhead crane for American Assembly Machine Co., Croton Falls, N. Y., to unnamed builder; 10-ton handpower crane for Public Service Production Corp., Newark, N. J., to New Jersey Foundry & Machine Co.; 25-ton locomotive crane for Merrimac Chemical Co., Boston, to Browning Crane Corp.

CRANE ORDERS PENDING

Thirteen electric overhead cranes noted last week as pending for an eastern company are for West Philadelphia plant of General Electric Co.; bids expected closed this week.

Four cranes, including two 75-ton, one 10-ton and one 20-ton, for a fabricator in the Pittsburgh district; bids being compiled.

One power house crane for turbine room, Youngstown Sheet & Tube Co., Youngstown, O.; bids being compiled.

20-ton 3-motor crane for Fox Bros. & Co., New York, for export; bids asked.

Used 5-ton electric crane for West Virginia Rail Co., Huntington, W. Va.; bids asked.

Gives Frick Birthplace To Society

Presentation of the birthplace of Henry Clay Frick to the Historical Society of Western Pennsylvania has been made by Helen Frick, his daughter. The house is at the old Overholt homestead, near Mt. Pleasant, and the gift includes the manor house and outbuildings, with 12 acres. A library and museum will be installed on the property by the Westmoreland-Fayette county branch of the Historical society.

Coke and Coal Tonnage Is on Decline

Beehive coke production in the week ended Oct. 29 was 86,000 net tons, against 105,000 tons the week preceding, according to the federal bureau of mines. For the calendar year to date output of beehive coke has totaled 6,233,000 tons; a year ago it was 9,798,000 tons.

Bituminous coal output in the week ended Oct. 29 totaled 10,016,000 net tons, compared with 10,285,000 tons the previous week. Thus far in 1927 production has been 436,168,000 tons; last year 459,078,000 tons.

Exports of steam locomotives from the United States in August totaled 11, with Canada taking four, Russia three and Mexico, Cuba, Argentina and Brazil, one each.

Industrial Business Changes

HENDRICK MFG. CO., Carbondale, Pa., manufacturer of steel floor grating and treads, has appointed four new representatives, as follows: J. E. Beattie, Greenville, S. C.; Boiler Equipment Service Co., Candler building, Atlanta, Ga.; Latex Steel & Machinery Co., San Jacinto Life building, Beaumont, Tex.; W. A. Sedwick Co., 401 Construction Industries building, Dallas, Tex.

* * *

Harnischfeger Corp., Milwaukee, has opened a branch office at 194 Boylston street, Boston. D. J. Calder is district manager.

* * *

E. D. Clapp Mfg. Co., Auburn, N. Y., has changed its address from 86 South Division street to 86 Columbus street.

* * *

Jersey City Machine & Supply Co., Jersey City, N. J., has moved its offices from 256 Provost street, to the Chamber of Commerce building.

* * *

Acme Wire & Iron Works, Detroit, will remove its plant from Canfield avenue to 12340 Cloverdale avenue. Production will be increased.

* * *

Davenport Locomotive & Mfg. Corp., 817 West Twenty-second street, Chicago, has taken over the business of the Davenport Locomotive Works and will continue its production of gas-electric locomotives, boilers, tanks, castings and forgings.

* * *

J. W. Judge Co., Hunter-Dulin building, San Francisco, has been appointed Pacific Coast representative for the Anthony Carlin Co., Cleveland, manufacturer of rivets.

* * *

Inge Auto Parts Co. Inc., 1952 North street, Baton Rouge, La., has bought the plant and business of the Auto Parts Co. and will continue the manufacture of automotive parts and supplies.

* * *

Henry Lindahl Machine Co., Chicago, manufacturer of power transmission appliances and special machinery, has moved from 952 West Lake street to 5900 Ogden avenue where it has built a new plant.

* * *

R. G. Haskins Co., Chicago, manufacturer of flexible shaft portable tool grinders, has moved into its new plant at 4636 West Fulton street. The new plant is one story, with individual motor drive for all machinery.

* * *

Pacific States Cast Iron Pipe Co., Provo, Utah, has opened offices in the Hunter-Dulin building, San Francisco. Victor H. Doyle has been appointed manager, to handle sales in northern California and western Nevada.

* * *

Artcraft Metal Products Co. has moved its plant from Columbus to Martins Ferry, O. In its new plant it has installed a complete porcelain enameling department made by the Ferro Enamel Supply Co., Cleveland.

* * *

Columbia Radiator Co., McKeesport, Pa., has bought the business and plant of the Ironton-Bernhard Boiler Co., Ironton, O., and will continue production of its line of boilers. J. B. Bernhard will be connected with the new company in its sales department.

* * *

Kerchner & Marshall, brokers in pig iron, ferroalloys and coke, have moved to larger quarters at 1645 to 1648 Oliver building, Pittsburgh. They formerly were located at 943 Oliver building. The firm is composed of L. S. Kerchner and R. M. Marshall.

* * *

Emsco Derrick & Equipment Co., Los Angeles, has bought the plants, equipment, branches, stocks and patents of the D & B Pump & Supply Co., also of Los Angeles. No change will be made in the personnel of the purchased company for the present. This merger gives the Emsco company a line of oil well pumping equipment in addition to its line of steel derricks and machinery for oil drilling. Growth of the Emsco Derrick & Equipment Co. has been rapid from its organization five years ago. The D & B Pump & Supply Co. was organized in 1909.

Tariff Increase Cuts Pig Iron Imports

PIG IRON imports into the United States during the first six months of 1927 amounted to scarcely a fifth of the total in the like period of 1826, according to figures compiled by the department of commerce. The reduction was due to the threatened and subsequent imposition of an increase of 50 per cent in the duty levied on pig iron.

Shipments from Belgium fell from 5648 gross tons to only 300 tons. France withdrew completely from the market, and shipments from Germany dropped from 89,347 tons in the first half of 1926 to 8311 in the same period in 1927. Receipts of Dutch pig iron were only one-third as great in 1927 as in 1926, as were those of Indian pig iron, while the exports of the British Isles to this country were only one-seventh as great as in the earlier year. The total of imports of pig iron in the first half of 1927 was 60,819 tons compared with 317,046 tons in the first half of 1926.

Imports of steel bars declined from 54,334 tons to 50,284 tons, while imports of structural shapes increased from 47,822 tons to 75,338 tons. The greatest gain in structural shapes was registered by Belgium, the 25,000-ton increase shown by this country being nearly as great as the total gain. The accompanying table shows a comparison of imports of pig iron, steel bars and structural shapes from various countries in the first half of 1927.

Imports of cast iron pipe increased from 28,801 tons in 1926 to 47,550 tons in 1927. The imports in 1927 were chiefly of French origin. Imports of "other pipe," principally steel tubing, increased from 11,524 tons in 1926 to a total of 32,445 tons in 1927.

United States Imports of Pig Iron, Bars, Structural Steel and Pipe

January through June, 1926 and 1927

Gross tons

Source and Ports of Entry	Pig Iron		Steel Bars		Structural Shapes		Cast Iron Pipe		Other Pipe	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Belgium										35
Massachusetts	...	650	1,082	782	3,281	1,479	1,563	1,126	....	....
New York	....	....	5,261	4,009	19,782	11,513	....	....	....	....
Philadelphia	100	1,813	1,336	648	7,116	2,549	....	....	....	....
Maryland	....	1,384	843	935	3,333	4,307	....	....	....	....
Florida	...	100	1,287	4,873	2,193	1,012	....	....	....	....
New Orleans	...	....	850	2,308	1,545	254	....	28	....	1,198
Galveston	...	....	4,307	5,178	5,804	3,129	4,392	3,003	1,018	....
Los Angeles	...	....	2,377	1,126	1,850	1,818	3,198	853	18	....
San Francisco	...	1,400	3,267	6,319	6,830	2,908	....	....	29	....
Oregon	...	5	3,943	1,671	1,065	615	....	....	246	....
Washington	...	296	1,019	1,272	1,681	1,223	....	....	....	....
Porto Rico	...	....	592	....	....	1	2	....	27	1
All Other Ports	200	....	896	96	822	73	....	....	....	....
Total	300	5,648	27,060	29,217	55,302	30,881	9,155	5,010	1,338	1,233
France										28
Massachusetts	...	2,500	202	....	42	....	3,156	2,049	....	....
Connecticut	...	....	....	....	....	....	....	3,433	....	....
New York	...	1,899	2,786	2,655	4,889	2,298	11,625	6,232	25	42
Philadelphia	...	17,535	2,684	615	228	515	51	1,272	74	..
Maryland	...	2,449	....	....	....	93	2,804	2,323	....	....
New Orleans	...	....	242	4,091	346	....	....	94	....	....
Galveston	...	450	....	....	....	....	6,960	186	941	646
Los Angeles	...	....	302	....	961	34	6,524	1,048	2,149	239
San Francisco	...	....	1,184	290	870	25	586	398	252	....
Oregon	...	200	152	121	25	143	....	....	....	....
Washington	...	....	216	49	....	....	4,974	2,245	....	....
Michigan	...	....	....	....	....	....	....	2,218	....	....
Chicago	...	....	....	....	....	....	....	560	....	....
All Other Ports	...	....	54	21	209	19	1	....	3	2
Total	...	25,033	7,822	7,842	7,570	2,127	36,681	22,058	3,444	957
Germany										18
Massachusetts	700	18,556	....	....	819	1,260	694	....	....	1,028
New York	44	6,750	2,150	704	5,208	3,064	....	....	972	62
Philadelphia	3,637	47,325	....	....	529	567	....	....	165	....
Maryland	1,200	5,530	....	....	....	....	567	7	117	....
Florida	250	....	....	....	1,635	....	....	....	....	85
New Orleans	750	....	215	1,137	....	....	....	....	17	160
Galveston	75	1,000	65	810	1,673	2,836	....	....	1,147	4,560
Los Angeles	685	4,152	1,388	977	....	....	394	762	15,758	76
San Francisco	550	2,860	1,003	548	....	....	....	....	132	....
Oregon	100	1,124	1,327	1,018	....	....	....	....	495	....
Washington	170	50	738	98	....	....	....	....	677	....
All Other Ports	150	2,000	1,601	959	1,491	643	1	....	36	8
Total	8,311	89,347	8,487	6,251	11,355	8,370	1,656	769	19,516	5,997
Netherlands										
Massachusetts	2,460	14,966	....	217	....	10	....	....	....	....
New York	5,846	12,700	14	214	....	787	....	....	228	109
Philadelphia	4,100	10,070	409	2,795	40	5	....	....	....	....
Maryland	1,500	3,440	....	498	....	....	....	....	40	241
Galveston	....	200	....	....	66	3,555	....	....	....	....
Los Angeles	1,340	1,525	119	29	....	171	....	946	81	....
Washington	25	151	....	55	....	....	....	....	....	....
All Other Ports	750	1,682	611	368	391	386	....	....	....	....
Total	16,021	44,734	1,153	4,176	497	4,914	....	946	349	350
Sweden										
Connecticut	....	....	341	....	....	....	....	....	62	....
New York	234	226	2,501	3,475	....	....	....	....	59	296
Philadelphia	173	493	804	299	....	....	....	....	39	9
All Other Ports	327	393	988	926	....	....	....	....	9	....
Total	734	1,112	4,634	4,700	....	....	....	....	169	305
United Kingdom										
Massachusetts	500	5,600	233	131	130	2	....	2	44	77
New York	3	1,750	496	446	253	360	....	....	1,490	1,823
Philadelphia	11,210	59,009	....	....	2	1	5	....	26	30
Maryland	100	4,900	....	....	3	5	....	....	....	....
Mobile	....	5,000	....	....	....	....	....	....	....	....
Porto Rico	....	....	424	....	....	....	....	....	....	....
All Other Ports	90	3,812	70	351	48	17	....	1	129	108
Total	11,893	80,071	1,223	928	436	385	5	3	1,689	2,038
Canada										4
Buffalo	225	122	1	1	....	4	....	6	354	353
New York	....	500	....	....	....	....	....	....	1,648	16
Michigan	380	2,396	15	46	31	28	....	6	....	6
All Other Ports	84	....	47	36	72	45	1	1	10	....
Total	689	3,018	63	83	103	77	1	13	2,012	379
India										....
Massachusetts	722	7,863	....	....	....	....	....	....	....	....
New York	4,738	11,561	....	....	....	....	....	....	....	....
Philadelphia	7,913	38,070	....	....	....	....	....	....	....	....
Maryland	2,586	2,990	....	....	....	....	....	....	....	....
Galveston	1,770	1,238	....	....	....	....	....	....	....	....
Los Angeles	1,121	2,069	....	....	....	....	....	....	....	....
San Francisco	3,841	3,261	5	....	....	....	....	....	....	....
All Other Ports	101	1,029	....	....	....	....	....	....	....	....
Total	22,792	68,081	5	....	....	....	....	....	....	....
All Other Sources										
All Ports	79	2	377	1,137	75	68	52	2	3,928	265
TOTAL—All Countries	60,819	317,046	50,824	54,334	75,338	47,822	47,550	28,801	32,445	11,524

British Welders Discuss Testing Methods

Professor F. C. Thompson, University of Manchester, in his presidential address before a meeting of the Institution of Welding Engineers in London, Wednesday, Oct. 12, devoted his attention to the changes which occur in iron as it cools from fusion down to room temperatures, to certain other effects of temperature, and to the effects of gases.

Before dealing with the actual subject matter of his paper, Professor Thompson emphasized the fact that one of the hindrances to the fuller adoption of welding is that any given weld must to considerable extent be taken for granted. There is as yet no possibility of true testing other than that of service. There are, however, certain directions in which the testing of welds can be attempted.

In the first place, mechanical tests can be applied to a certain number of welded articles, which naturally will be destroyed without providing proof that the remaining articles are equal in quality. Testing methods which do not involve destruction can be applied, but there are weaknesses attached to these. Hydraulic pressure in general is excellent, but only certain types of welded articles are suitable for such tests. X-ray examination is capable of detecting certain flaws, but only the more obvious ones; installation is costly, needs careful manipulation and is expensive. The speaker stated that he could not see that industry has much to hope for in X-ray examination.

Simple methods which could be used in the average plant are being investigated and there are chances of success in certain directions. One simple test is by electrically heating the article in the neighborhood of the weld and looking for hot spots, areas of high electrical resistance, indicative of flaws or inclusions. Other methods are being tried, including magnetic methods, and electrical resistivity measurements are among the most likely methods to give results with simple apparatus.

The point was raised that welds made outside in cold weather proved to be defective, whereas when repeated in a normally heated room the welds were apparently sound. Professor Thompson stated that, past investigations have proved that variations of a few degrees in the outside temperature have a great influence on the result of the impact test. One speaker, who had had experience in welding cast iron, said that the cast iron is first heated to a certain temperature and welded while hot, and then cooling is obtained very gradually. By using this method the results are generally good.

Iron and Steel Works Employment Less

Washington, Nov. 8.—There was a general decrease in employment and payrolls in iron and steel and allied trades in September, compared with August, according to the bureau of labor statistics, department of labor.

Reports were received from 209 iron and steel mills who gave their August employment at 262,726 decreasing in September to 260,847, a loss of .7 per cent. The payrolls in these mills also decreased from $7,741,484 in August to $7,543,486 in September, a decline of 2.6 per cent.

The bureau also received reports from 42 cast iron pipe works who gave their August employment at 13,618, decreasing in September to 13,034, 4.3 per cent lower. The payrolls in these plants also declined from $333,453 in August to $316,861 in September, a decrease of 5 per cent.

One hundred and fifty-nine structural ironwork plants reported August employment at 24,096 dropping in September to 23,838, a decrease of 1.1 per cent. The payrolls in these plants also lessened from $732,146 in August to $682,246 in September, a decrease of 6.8 per cent.

However 153 machine tool plants reported August employment at 25,602, increasing in September 28,541, a growth of 11.5 per cent. The payrolls in these plants also grew from $785,601 in August to $871,854 in September, an increase of 11 per cent.

Shop Employment and Earnings Lower

Employment in shops represented in the National Metal Trades association averaged 564,484 in September, in contrast with 634,780 in the same month in 1926, a reduction of 11 per cent. Average employment in August this year was 575,493, and in July 573,860. The average of weekly earnings in July, 1927 was $26.82. This is the latest month for which the figure is given in the current report from the association. The average in June was $27.32, and in May $27.52.

The United States exported 486 air compressors with a capacity over 25 feet in August, with Canada receiving 178.

Industries Productivity Greatly Increased

To produce a given product at a given time requires a certain number of workers. Change the process and the number may be diminished. Industry has been undergoing many changes in the past 25 years and, taken all in all, 72.7 men produced under the conditions of 1925 what required 100 men to manufacture in 1914 and 108.2 men in 1899 according to the National Industrial Conference board.

What is true of industry as a whole is true of individual industries, but not to the same extent in each. The following table tells how many more were required at census periods to accomplish the work of 100 men in 1914. Apart from the shipbuilding industry, which has undergone various well-known vicissitudes, every industrial group in 1925 required less men than in 1914 to produce the same quantity of product. If the comparison be carried back to the beginning of the century it is seen that certain industries required less men than 1914 for a given product, but that most of them required more. The decrease in the number required in 1925 compared with the number needed in 1899 is in several instances as much as 50 per cent. It is least in those industries which were already well-established 25 years ago, and is greatest in the newer forms of manufacturing enterprise. The number of persons engaged in industry for the product of 100 men as in 1914 is as follows:

	1914	1921	1925
All industries	100.0	99.6	72.7
Food and kindred products	100.0	92.5	79.4
Textiles and their products	100.0	106.4	95.0
Iron and Steel and their products	100.0	120.6	75.8
Lumber	100.0	102.8	92.1
Leather and its remanufactures	100.0	97.9	98.9
Paper and printing and related products	100.0	113.2	81.4
Chemicals and allied products	100.0	82.6	65.7
Stone, clay and glass products	100.0	92.7	66.1
Metal and metal products (other than iron and steel)	100.0	78.8	59.9
Tobacco manufactures	100.0	64.4	42.2
Vehicles for land transportation	100.0	55.7	29.8
Ship and boat building	100.0	56.0	119.3
Rubber	100.0	61.0	39.1

Copper Employs More

Houghton, Mich., Nov. 8.—Total number of men employed in mines, mills and smelters of Houghton county in the Michigan copper district is 7832, according to the annual report of the county inspector of mines. This is an increase of 108 over the 1926 total and the largest number on the payrolls since 1920.

CONSTRUCTION *and* ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

WATERBURY, CONN.—American Brass Co. has awarded the general contract for a 1-story addition 42 x 66 feet to the Tracy Bros. Co., Waterbury. (Noted Sept. 8.)

WETHERSFIELD, CONN.—Arrow Screen Co., maker of screen and wire specialties, has started work on a 1-story plant 25 x 130 feet.

BALTIMORE—Smith Welding Equipment Eastern Corp. has been incorporated by Joseph P. Murray, 115 North Lakewood avenue.

BALTIMORE—Triangle Mfg. Co., 4306 Eastern avenue has been incorporated to manufacture electric shower heaters by Joseph C. A. Cresta, 4306 Eastern avenue.

TOWSON, MD.—Black & Decker, A. G. Decker, manager, manufacturer of machinery and tools, contemplates building a 1-story plant addition.

BOSTON—Marlin Poindexter Inc. has been incorporated with 1000 shares no par value stock to manufacture medical instruments, by H. Poindexter, 488 Center street, Newton, Mass.

BOSTON—Mercury Products Corp. has been incorporated with $75,000 capital to manufacture electrical and automobile devices, by Robert M. Dick, 1623 Center street, West Roxbury, Mass.

BOSTON—James Grinding Process Co. has been incorporated with $50,000 capital and 400 shares no par value stock, to grind mica and ore, by George W. MacDow, Appleton street, Watertown, Mass.

CAMBRIDGE, MASS.—Kollen Vending Machines Corp. has been incorporated with $120,000 preferred shares, 2400 shares no par value to manufacture automatic vending machines by David E. Black, 17 Jamison street, Newtonville, Mass.

LYNN, MASS.—Prime Mfg. Co. has been incorporated with 200 shares no par value to manufacture machines for laying adhesive fabric tape, cementing machines, etc., by Andrew R. Ridderstrom, Nahant, Mass.

LYNN, MASS.—A. & E. Pitman Mfg. Co. Inc. has been incorporated with $50,000 preferred and 100 shares no par value stock to manufacture bakers and boilers, engines, tools etc., by Eugene W. Pitman, Wardwell avenue, Lynn.

NEW BEDFORD, MASS.—H. & E. Pipe Wrench Inc. has been incorporated with $50,000 of preferred stock to manufacture pipe wrenches etc. by Robert J. Holmes, 3 Lakeview road, Winchester, Mass.

TAUNTON, MASS.—Kompact Vending Machine Co. Inc. has been incorporated with $25,000 capital to manufacture vending machines, by Samuel Cohen, 13 Cedar street, Taunton.

JERSEY CITY, N. J.—American Can Co. has awarded the contract for spirals for its new building here to Faitoute Iron & Steel Co.

KEARNY, N. J.—Western Electric Co., previously noted as contemplating a plant addition here, has closed on structural steel for this project. Necessary equipment, it is understood, will be purchased through the company's Hawthorne works, near Chicago. (Noted Oct. 13)

LODI, N. J.—Gates & Day Aircraft Corp. has been incorporated with $250,000 preferred and 2500 shares no par value stock to manufacture lighting systems for aircraft, by Max J. Finkelstein, New York, attorney.

NEWARK, N. J.—Miele Mfg. Co. Inc., 647 South Fifteenth street, maker of welded steel products, is building an extension to its plant.

NEWARK, N. J.—Growder Laboratories has been incorporated with $100,000 capital to do electroplating with Herrigel, Lindabury & Herrigel, Newark, attorneys.

NEWARK, N. J.—Metal Tone Mfg. Co. Inc. has been incorporated with $20,000 capital to manufacture toys, with C. C. Cousins, New York, attorney.

NEWARK, N. J.—Hydraulic Steel Bailing Co. has been incorporated with 100 shares no par value stock to manufacture metal products by David H. Litter, South Orange.

NEWARK, N. J.—Automatic Recording Safe Co., 159 North State street, Chicago, maker of banks and devices for home savings, etc., will have a branch plant here in newly leased property at High street and Boyden place.

NEWARK, N. J.—Krautter-Weber Tool Co., 86 Monroe street, has leased part of the building at Ferry and St. Francis streets for a new plant. Terminal Pattern & Model Works Inc., also of 86 Monroe street, has taken another part of the building for expansion.

BROOKLYN, N. Y.—Eastern Steel Bed Corp., 516 Dumont avenue, was damaged by a recent fire.

BROOKLYN, N. Y.—Wallabout Scrap Iron & Metal Co. has been incorporated with $20,000 capital with M. Raileanu, 37 Graham avenue, attorney.

BUFFALO—McCauley Metal Products Co., 660 Grant street, will build a 1-story plant.

BUFFALO—Buffalo Slag Co., foot of Catherine street, was damaged by a recent fire.

HARRISON, N. Y.—Intertype Co. which had planned to build a new plant, has abandoned the project.

NEW YORK—Manick Elevator Co. has been incorporated with $20,000 capital by D. L. Shapiro, 1560 Broadway, attorney.

NEW YORK—Sensitive Research Instrument Corp. has been incorporated with $20,000 capital to manufacture electrical instruments by A. L. Fiorillo, 165 Broadway, attorney.

NEW YORK—Sexton Engineering Co. has

Resale Equipment News

BLAST furnace and other property of the Struthers Furnace Co., Youngstown, O., have been sold at public auction in receivership. One bid of $200,000 was received from the bondholders' committee. Arrangements are under way for continued operation of the furnace.

* * *

Lehigh Foundries Inc., Easton, Pa., Alexander A. Shumann, treasurer, Morrisville, Pa., has bought the Easton plant of the Kuebler Foundries Inc., bankrupt. This plant was bought at receiver's sale recently by the Gibney Iron & Steel Co., Phillipsburg, N. J. The plant will be enlarged and equipment will be increased. Iron castings will be added to its products.

* * *

Real estate owned by the American Steel Co., near West Waynesburg, Pa., has been bought by the Union National bank, Pittsburgh, which some time ago bought the plant. Resumption of operations is expected.

* * *

Plant and equipment of the Wales Adding Machine Co., Wilkes-Barre, Pa., has been bought at public sale by the Remington-Rand Co. Inc., New York, and will be operated under the Powers Accounting Machine Co., a subsidiary.

Sales Calendar

Nov. 15—*Navy Surplus and surveyed material auction at Philadelphia.*

Nov. 15—*Sale of plant and equipment of the Auto Body Co., Lansing, Mich.*

Nov. 28—*Assets of Rickenbacker Motor Car Co., Detroit, at public sale.*

been incorporated with $10,000 capital to manufacture machinery, motors, etc., by W. L. Runnell, 2 Lafayette street.

NEW YORK—Garve Machine Works has been incorporated with $5000 capital to manufacture hat stitching machinery by C. H. Studin, 19 West Fourty-fourth street.

NEW YORK—Marzullo Engine & Turbine Corp. has been incorporated with $10,000 to manufacture motors and engines with D. Geiger, 276 Fifth avenue, as attorney.

NEW YORK—Hudson Stock Corp. has been incorporated with 1000 shares no par value stock to manufacture machinery by Simpson, Thatcher & Bartlett, 120 Broadway, attorneys.

NEW YORK—Taylor-Fichter Steel Construction Co. has been awarded the structural steel contract for a 4-story garage at 101st street and Broadway.

NEW YORK—Renaissance Bronze & Iron Works has been incorporated with $500 preferred stock, 5000 shares no par value stock by R. H. Montgomery, 385 Madison avenue, Manhattan, attorney.

NEW YORK—Plumbers Water Heating Corp. has been incorporated with $20,000 preferred stock, and 200 shares no par value stock to manufacture water heaters by W. S. Doernberg, 28 West Forty-third street, attorney.

NEW YORK—M. H. Treadwell Co., 140 Cedar street, has awarded the general contract for a 1-story plant to be built in Jersey City, N. J., to the Connolly Contracting Co., Secaucus road, Jersey City.

ALLENTOWN, PA.—Linde Air Products, 30 East Forty-second street, New York, maker of welding apparatus, etc., contemplates building a new plant here.

COLUMBIA, PA.—Columbia Malleable Castings Co., L. R. Zifferer, president and general manager, contemplates building a plant addition for the manufacture of light gray iron castings.

HARRISBURG, PA.—Elliot-Fisher Co., maker of calculating machines, typewriters etc., plans to build additions and extensions to include the installation of new equipment.

PHILADELPHIA—Contract has been awarded to T. W. Kittelman, 125 East Upsal street, for a plant addition for Yarnall-Waring, maker of valves, etc.

PHILADELPHIA—Barber Asphalt Co. has awarded a contract to the Blaw-Knox Co., Blawnox, Pa., for a storage house, Hunting park and E street.

PHILADELPHIA—Henry L. Reinhold Jr., architect, is preparing plans for a factory building for Mallard Bryan on Fiftieth street, north of Wynnefield street.

PITTSBURGH—Iron City Electric Co. will soon award the contracts for its new plant.

PITTSBURGH—Packard Motor Car Co. soon will award the contracts for its new building. Albert Kahn, Detroit, is the architect.

PITTSBURGH—American Spiral Spring & Mfg. Co., 5540 Harrison street, will build a 1-story addition on property 100 x 100 feet, recently acquired.

SHARON, PA.—Sharon Pattern Works, 96 Chestnut avenue, Edmond Collins, manager, contemplates building a 2-story pattern shop.

TEMPLETON, PA.—Harbison-Walker Refractories Co. has awarded the contract for structural steel for a kiln building, to Jones & Laughlin Steel Corp., Pittsburgh.

East Central

CHICAGO—H. E. Gremp Co., 10629 Buffalo avenue, expects to start manufacturing its line of architectural and ornamental iron work in its new plant early this month.

CHICAGO—Hess Warming & Ventilating Co., 1207 South Western avenue, will build a 3-story plant. W. H. Tomlinson, Morris building, Joliet, Ill., is architect.

CHICAGO—Raffel Mfg. Co., 4449 Armitage avenue, has awarded the general contract for a 1-story office and shop addition to Enger Bros., 4910 St. Paul avenue. (Noted Nov. 3)

CHICAGO—Four-in-One, 2023 North Halsted street, has been incorporated with $50,000 capital to manufacture mechanical specialties and devices with William Gridley & Co., 1305 Conway building, correspondent.

CHICAGO—Restoro Co. Inc., 220 South State street, has been incorporated with $25,000 capital to manufacture surgical, medical, electrical and other instruments, with Goodnow, Allaben & Snewind, 160 North La Salle street, correspondents.

CHICAGO—Home Heating & Plumbing Corp., 1132 West Sixty-ninth street, has been incorporated with $1000 capital to manufacture plumbing fittings, fixtures and tools, with McInerny & Power, 160 North LaSalle street, correspondents.

CHICAGO—Wells Sheet Metal Co., 1514 North Wells street has been incorporated with $3000 capital to manufacture tinware, sheet metal and all kinds of metal products, with Edwin B. Schneider, 155 North Clark street, correspondent.

CHICAGO—South End Motor & Radio Supplies Inc., 1207 West Sixty-third street, has been incorporated with $20,000 capital to manufacture and deal in automobile and radio accessories and parts with Condon & Livingston, 231 South La Salle street, suite 983, correspondents.

EAST PEORIA, ILL.—Caterpillar Tractor Co., O. L. Starr, at Oakland, Calif., general manager, contemplates building a plant addition.

PEORIA, Ill.—Lincoln Oil Burner Mfg. Co., 629 Franklin street, has been incorporated with $15,000 of preferred stock, 2000 shares no par value stock, to manufacture mechanical oil burners and accessories, with Miller, Elliott & Westervelt, Peoria Life building, correspondents.

QUINCY, ILL.—Excelsior Stove & Mfg. Co., 510 South Front street, W. J. Fisher, vice president, will build a 1-story foundry addition.

ROCKFORD, ILL.—Mattison Machine Works, 545 Blackhawk Park avenue, C. L. Mattison, superintendent, contemplates building a 1-story foundry.

ROCK ISLAND, ILL.—Rock Island Stove Co., 200 Fourth street, Leon Mitchell, vice president, has awarded the general contract for a 1-story plant to Greenleaf Construction Co., Musenfelder building.

HAMMOND, IND.—L. E. Emerling, 1501 South Hohman street, will build a 1-story machine shop and garage.

INDIANAPOLIS—Klieber-Dawson Co., 316 North State street, contemplates building a machine shop addition.

KOKOMO, IND.—Atwood Mfg. Equipment Co. has been incorporated to manufacture grinder centers, stud centers, power screwdrivers etc., and has purchased the plant of the Worth Wire Co. of Kokomo and is installing machinery.

MUNCIE, IND.—Warner Gear Co., Penn and Clark streets, Ray P. Johnson, president, contemplates building a new plant.

SOUTH BEND, IND.—M. B. Skinner & Co., 558 West Washington street, Chicago, maker of cutters and other equipment has awarded the general contract for a 1-story plant 150 x 150 to be built here to H. G. Christman Co., this city.

TERRE HAUTE, IND.—National Bridge & Supply Co. has been organized to manufacture road machinery, steel bridges, culverts, etc.

DETROIT—John D. Stanton Steel Co. has been incorporated with $50,000 capital by John D. Stanton, 701 Southfield road.

DETROIT—Kermath Mfg. Co., 5890 Commonwealth avenue, maker of marine engines and parts, contemplates building a 3-story addition, 30 x 60 feet, and to install equipment.

STURGIS, MICH.—Berridge Shear Co.,

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works
First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., and East Chicago, Ind.	52.00
Birmingham	51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE
Per Net Ton Chester, Pa. and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK
Per Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Iron and Manganese Ores and Minerals

LAKE SUPERIOR ORES

Iron Ore

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 58 to 63 per cent	8.75 to 9.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, alongside docks, Atlantic ports

Spanish manganiferous ore, 54 per cent iron and 2 to 4 per cent manganese	10.25 to 10.75
North African low phosphorus	11.00 to 11.50
Swedish foundry or basic, 62 to 65 per cent	9.50 to 9.75
Spanish foundry or basic, 52 to 56 per cent	9.50 to 9.75
North African foundry and basic 50 to 56 per cent	9.25 to 9.75

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian	36 to 38 cents
Indian	36 to 38 cents
Caucasian, 53 to 55 per cent washed	38 to 40 cents

Fluorspar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$16.00
Washed gravel, imported duty paid eastern tidewater, per net ton	16.00 to 16.50

maker of shears, crimpers, etc., contemplates rebuilding the part of its plant damaged by recent fire.

CINCINNATI—G. A. Schacht Motor Truck Co., Eighth and Evans street, W. Schacht, president, will build a 1-story plant addition.

CLYDE, O.—Reps Stove & Heater Co. has been incorporated with $50,000 capital by Harvey P. Reppetto, Edwin C. Johnston and Carl Weis.

FREMONT, O.—Herbrand Co. has work under way on its new plant addition, 75 x 200 feet and its is expected to be completed by Dec. 15.

ORRVILLE, O.—Quality Castings Co. has been incorporated with $50,000 capital by Frank L. Phillips, W. E. Heller and Frank L. Strauss.

GLEN FERRIS, W. VA.—Electro-Metallurgical Co., 30 East Forty-second street, New York, plans to build a plant here on newly acquired property.

CEDARBURG, WIS.—American Electric Motors Inc., newly acquired subsidiary of the Splitdorf-Bethlehem Electric Co., has accepted the bid of Vollmar & Liesenberg, local contractors, for erecting a 1-story plant addition, 60 x 80 feet, to be ready before Dec. 1.

DENMARK, WIS.—Alfred Rasmussen has started work on the erection of a new building, 55 x 60 feet, to be used as an automobile repair and service shop and forge.

GREEN BAY, WIS.—Fort Howard Paper Co., South State street, has let the general contract to the H. J. Selmer Co., local, for erecting a new boiler room, 2 stories, 53 x 58 feet.

GREEN BAY, WIS.—Lorens Hansen & Sons have taken the general contract to build a 1-story shop addition, 86 x 164 feet, for the Northwest Engineering Works, manufacturing tractor type cranes, hoists, etc.

KAUKAUNA, WIS.—Moloch Foundry & Machine Co., manufacturer of power hammers, automatic stokers, etc., is building a steel pattern storage building, 1-story, 30 x 80 feet. Work on a new foundry to replace the shop destroyed by fire some time ago is about completed.

MILWAUKEE—Milwaukee File & Rasp Co., has been incorporated with $5000 capital by S. K. Larrabee, K. M. Palmer and A. Vander Heyden.

MILWAUKEE—Milwaukee Machine Products Co., 1671 Green Bay avenue, has been incorporated with $10,000 capital to manufacture and deal in machine products of all kinds, by Gottlieb Mueller, Fred Wandel and Robert Gieringer.

Southern States

ANNISTON, ALA.—Callahan Grinding Machine Co. is receiving bids for a new building.

BIRMINGHAM, ALA.—Birmingham Pressed Steel Co. Inc., Ensley, Ala., is building a plant addition here.

MOBILE, ALA.—Alabama State Docks commission has awarded contract to Doullut & Erwin, Mobile, for construction of foundation for coal and material handling plant.

ATLANTA, GA.—Chevrolet Motor Co., Detroit, will start construction of its new plant here to include an assembly building 320 x 800 feet; a Fisher body unit, 160 x 680 feet; a parts building 120 x 204 feet and a 2-story office, 40 x 204 feet. The plant is expected to be occupied by April 1, 1928.

LOUISVILLE, KY.—J. Preston Bradshaw, St. Louis architect, plans to build a multi-story service, repair and garage building.

SHREVEPORT, LA.—Nolen Machinery Co. Inc. has been incorporated with $21,000 capital by M. P. Nolen and Minerva Kelly.

SHREVEPORT, LA.—Shreveport Light Deflector Co. Inc. has been incorporated with $30,000 capital by I. M. Reed, 2825 Catherine street.

CHARLOTTE, N. C.—E. H. Jacobs Mfg. Co. has acquired the Williamsburg Buff Wheel Mfg. Co. and will start manufacturing at a later date.

HENRYETTA, OKLA.—Black Diamond Fuel Co., capital $10,000, has been incorporated by D. J. Hughes and E. L. McLaughlin of Henryetta and H. L. Cheyne, Miami, Okla., to engage in coal mining operations.

PONCA CITY, OKLA.—Modern Boiler & Welding Co. has been incorporated with $10,000 capital by D. E. Randolph, J. J. Ryker and W. R. Laventure.

TULSA, OKLA.—Taubman Pipe & Supply Co. announces construction of pipe yards and pipe threading shops at Wink, Tex. in Winkler county fields and at Pyote, Tex., in Pecos county fields.

TULSA, OKLA.—Whealton & Townsend, local distributers for Chicago Pneumatic Tool Co., are adding a 40 x 130 2-story warehouse annex to present building for storage of heavy air compressing machinery.

WEWOKA, OKLA.—Seminole Iron & Metal Co., has been incorporated with $5000 capital by Dave Rodman, Albert Michelson and Dan Russack.

FRONT ROYAL, VA.—Locust Pin Co. Inc., maker of insulator pins, brackets, etc., contemplates rebuilding the part of its plant damaged by recent fire.

HOPEWELL, VA.—Nitrogen Corp. has awarded the contract for structural steel for its building to the Virginia Bridge & Iron Co.

GALVESTON, TEX.—Acme Machine Co., has been incorporated with $20,000 capital by W. J. Mead, 1919 Twenty-fifth street, W. E. Cleveland and Elizabeth Mead to operate machine shop specializing on marine repairs.

HOUSTON, TEX.—Marine Service Inc. has been incorporated with $30,000 capital to establish a marine service plant, and to construct a machine shop 50 x 60 feet, by W. R. McGinnis, general manager.

HOUSTON, TEX.—Southern Pacific railway has awarded contract to J. M. L. West, Post-Dispatch building, for 1-story triangular shape steel and galvanized iron warehouse, 60 x 20 x 60 feet, and a 2-story office building, 44 x 65 feet.

COLUMBIA, S. C.—Re-Nu Bearing Mfg. Co. has been incorporated by Clifford D. Stallings, 2409 Main street, to manufacture bearings of all kinds.

Business in Canada

OTTAWA, ONT.—Dominion Bridge Co., Sparks street, has purchased a 12-acre site adjoining its present plant at Eastview, where it proposes to build a large addition to local plant.

OWEN SOUND, ONT.—National Table Co., Third avenue East, has started work on a 3-story, 50 x 60-foot brick and mill construc-

tion addition to its factory here. Woodworking machinery and tools will be purchased.

PRESTON, ONT.—Werlich Mfg. Co., Bishop street, has purchased a site adjoining its present plant here and proposes to build a large addition. John Werlich is manager of the company.

RENFREW, ONT.—Renfrew Refrigerator Co. Ltd., Raglan street, will build addition to its plant. The company is in the market for equipment. Construction work to be started at once. F. D. Vickers, manager.

SWANSEA, ONT.—J. Robert Page, 18 Toronto street, Toronto, will start work at an early date on an addition to the plant here for the Steel Co. of Canada Ltd., Hamilton, Ont.

TORONTO, ONT.—General Steel Products Ltd., 605 King street east, has started work on a large addition to its plant here and will install considerable new machinery.

TORONTO, ONT.—Gilbec Mines Ltd. has been incorporated to mine, smelt and refine ores, metals and minerals, with 2,000,000 shares no par value stock by Larmour Soliaque, Francis A. Blackburn and Agnes Moulton.

TORONTO, ONT.—St. Martin Lake Montbray Mines Ltd. has been incorporated to carry on the business of a mining, milling and reduction company, with 250,000 shares no par value by Benjamin Luxenburg, Isadore Levinter, and Leonard E. Love.

TORONTO, ONT.—Gordon Campbell Motor Sales Ltd. has been incorporated to manufacture and deal in automobiles, motor cars, motorcycles, trucks, etc. with $25,000 capital and 300 shares no par value, by Norman S. Robertson, George M. Willoughby and William F. Woodliff.

TORONTO, ONT.—Manitoulin Quartzite Ltd. has been incorporated to carry on business as a mining, milling, reduction and development company, with $250,000 capital and 50,000 shares of no par value by Osborn S. Hollinrake, Frederick W. Bartrem and Thomas N. Poole.

TORONTO, ONT.—Kerry & Chase, engineers, Confederation Life building, have prepared plans for a plant consisting of five buildings for the Canadian Paper Board Co., 32 Front street West, Toronto, to be erected on the eastern harbor terminal at the foot of Carlaw avenue. Bids will be called immediately for some of the work.

WINDSOR, ONT.—Frank Pithie Ltd. has been incorporated to manufacture and deal in electrical machinery, apparatus and appliances with $15,000 capital and 400 shares no par value stock, by Frank Pithie, Minnie E. Pithie and Katherine Ashley.

MONTREAL, QUE.—G. W. Reed & Co., 37 St. Antoine street, manufacturer of fireproof windows, doors, metal stampings, etc., will build 1½-story factory addition, 75 x 146 feet. Church Ross Co., 698 St. Catharine street, has the general contract.

MONTREAL, QUE.—Montreal Island & Power Co., 83 Craig street west, has had plans prepared by the Power Corp. of Canada Ltd., engineers, 20 St. Nicholas street, for the construction of a power plant at Visitation island, River des Prairies, Back river. Tenders will be called by engineers this winter and construction will be started next year.

PORTNEUF, QUE.—M. Leduc, Donnacona, Que., has the contract for the erection of a 1-story, 100 x 150-foot concrete foundation and reinforced concrete construction paper plant here, for Ruberoid, Ltd.

QUEBEC, QUE.—Brown Corp., 71 St. Pierre street, is contemplating building pulp mill, electric transmission line at Riviere Madeleine, Que. Construction work to start next spring.

New Trade Publications

ELECTRIC FURNACES—Greene Electric Furnace Co., Seattle, Wash., has published a folder giving the sizes and capacities of its electric arc furnace.

SAND BLAST EQUIPMENT—Ruemelin Mfg. Co., Minneapolis, is distributing an 8-page folder describing its sand blast and dust suppression equipment.

CHAIN HOISTS—A spur-geared, ball-bearing chain hoist is described in a bulletin by the Dickerman Hoist Mfg. Co., Cleveland. Illustrations show the hoist entire and disassembled and each part is fully described.

POWER HAND SHEAR—A hand shear with capacity to shear sheet material up to 18 gage, equipped with ⅛-horsepower, is the subject of a bulletin by the Unishear Co. Inc., 175 Fifth avenue, New York.

REAMERS—A booklet by the Barber-Colman Co., Rockford, Ill., is devoted to reamers and reamer sharpeners. Use of these appliances give accurate results in reaming. Many illustrations serve to make the text clearer.

COMBINATION BENCH MACHINE—Niagara Machine & Tool Works, Buffalo, N. Y., has issued a bulletin on its combination bench machine for turning, wiring and burring. It is illustrated and gives data and specifications.

ELECTRIC STEEL CASTINGS — Lebanon Steel Foundry, Lebanon, Pa., in a current bulletin of a series, lays special stress on inspection. Various steps supervised as castings are made contribute to excellence of product. The bulletin is illustrated.

METAL SAWING MACHINES—Heavy duty metal sawing machines are described in a bulletin by Edward G. Herbert Ltd., Levinshulme, Manchester, England. Illustrations show the machines and tabular matter their accomplishment in various metals.

PULVERIZED COAL EQUIPMENT—Combustion Engineering Corp., New York, is distributing a reprint describing how it remodeled a large furnace plant for the use of pulverized coal, increasing steam production to meet larger needs. It is illustrated.

RADIAL TOOL—Guardian Products Co., 3050 East Eightieth street, Cleveland, has issued a bulletin describing its radial tool. It is operated by electric current or compressed air. Riveting, drilling, grinding or polishing are accomplished by use of the device.

BLOWERS AND COMPRESSORS—A catalog of its centrifugal blowers and compressors has been issued by the Elliott Co., Pittsburgh. It is fully illustrated by halftones of various types of this equipment and its component parts, by working installations, charts showing curves, and tables of data.

PRESS BRAKES—Steel as a material for construction of open-throat press brakes is the theme of a bulletin by the Long & Allstatter Co., Hamilton, O. Minimum deflection of the main members is obtained by the use of steel castings. The bulletin is illustrated and a table of specifications and data is given.

HARDNESS INDICATOR—A device manufactured by the Shore Instrument & Mfg. Co., Jamaica, N. Y., is the subject of a current bulletin. It is a static mechanical pressure machine acting on a small diamond ball impressor point through a high duty weigher or pressure scale. The bulletin is illustrated.

MATERIAL HANDLING—Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O., has issued a bulletin on economical moving of ceramic and similar products in the plant. Larger loads with fewer men form the basis for this bulletin. It is illustrated.

GOGGLE VALVE—William M. Bailey Co., Pittsburgh, has issued a bulletin describing its thermal expansion goggle valve for use in gas mains. A thermal expansion element serves to close the valve tightly against escape of gas. The bulletin is illustrated to show construction and operation and actual illustrations are presented.

SHOVEL-CRANE—A catalog by the Thew Shovel Co., Lorain, O., describes one of its new products, a caterpillar crane, shovel, dragline, with a number of new mechanical features, adapted to many uses. It is illustrated to show its varied possibilities in use and to present details of its design and construction. Full specifications and data are given.

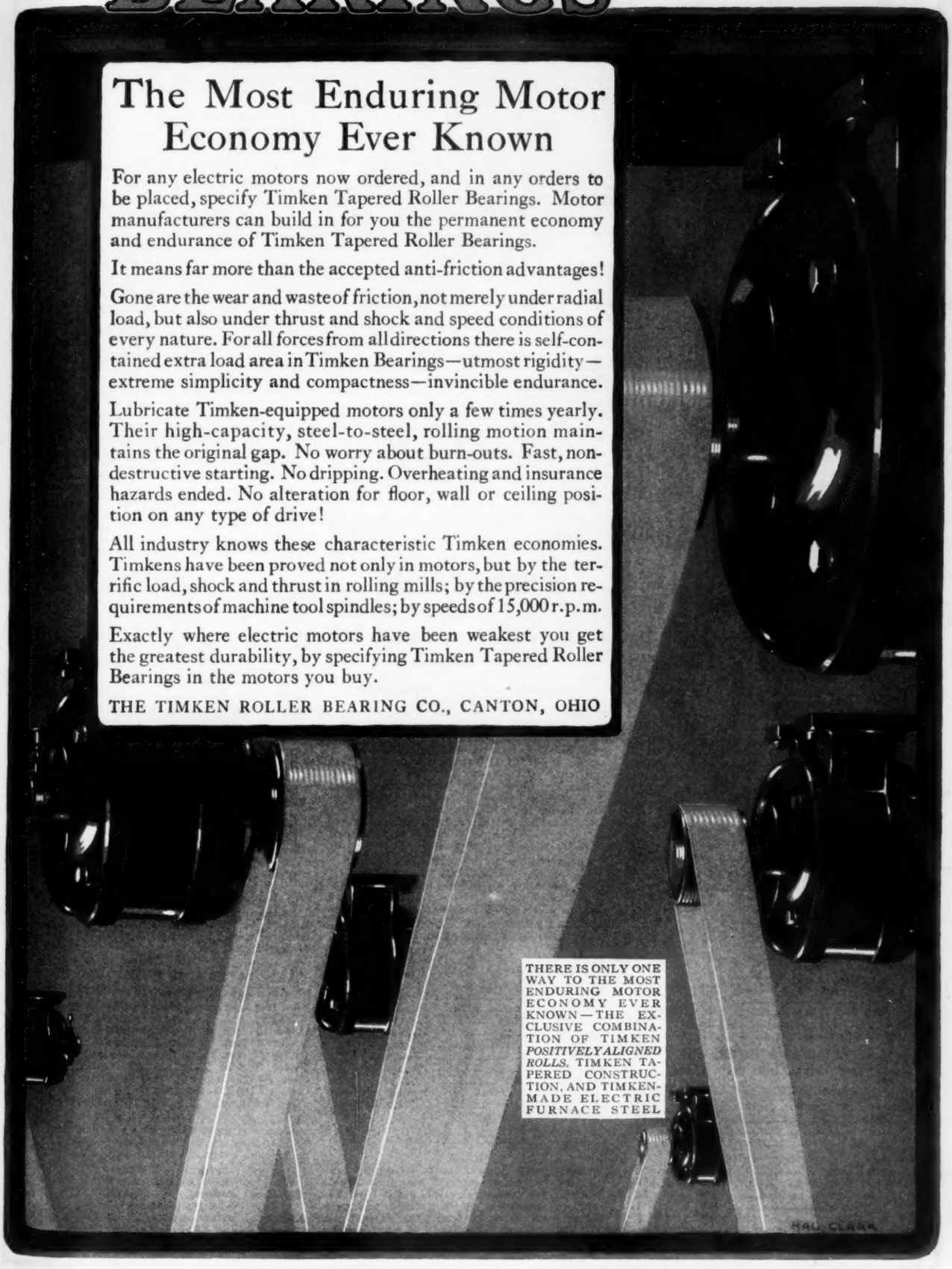
BEAM SECTIONS—Carnegie Steel Co. is issuing a leaflet containing additions to its new series of beam sections. These consist of heavier and lighter weights of a 14-inch section; a new 12-inch constant depth section with 9-inch flange in four weights, and a modification of a 12-inch constant depth section with flange increased from 10 to 10½ inches.

REVERBERATORY FURNACES — British Reverberatory Furnaces Ltd., London, England, has published a catalog giving information on its reverberatory furnaces for foundry melting. The furnaces are for coke firing but may be adapted to oil firing, and are supplied in standard sizes of 500, 1000, 2000 and 4000 pounds capacity. Larger sizes will be built to order.

MOLDING MACHINES—Universal System of Machine Moulding & Machinery Co. Ltd., London, England, has published a 68-page catalog describing its molding machines and foundry appliances. Features of construction are presented and applications of the various machines given. Dimensions of the machines also are given. The machines are designed for hydraulic or hand operation, and are of the squeezer, jolt, roll-over or combination types.

ELECTRIC LOCOMOTIVES—A catalog of electric locomotives has been issued by the Baldwin Locomotive Works, Philadelphia, and Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. For 30 years these companies have been building locomotives powered by electric motors. Application of this type of motive power to industrial and switching service is outlined and halftones show actual use. Full details of construction and equipment are illustrated. Data on operation are given.

TIMKEN *Tapered Roller* BEARINGS



The Most Enduring Motor Economy Ever Known

For any electric motors now ordered, and in any orders to be placed, specify Timken Tapered Roller Bearings. Motor manufacturers can build in for you the permanent economy and endurance of Timken Tapered Roller Bearings.

It means far more than the accepted anti-friction advantages!

Gone are the wear and waste of friction, not merely under radial load, but also under thrust and shock and speed conditions of every nature. For all forces from all directions there is self-contained extra load area in Timken Bearings—utmost rigidity—extreme simplicity and compactness—invincible endurance.

Lubricate Timken-equipped motors only a few times yearly. Their high-capacity, steel-to-steel, rolling motion maintains the original gap. No worry about burn-outs. Fast, non-destructive starting. No dripping. Overheating and insurance hazards ended. No alteration for floor, wall or ceiling position on any type of drive!

All industry knows these characteristic Timken economies. Timkens have been proved not only in motors, but by the terrific load, shock and thrust in rolling mills; by the precision requirements of machine tool spindles; by speeds of 15,000 r.p.m.

Exactly where electric motors have been weakest you get the greatest durability, by specifying Timken Tapered Roller Bearings in the motors you buy.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

THERE IS ONLY ONE WAY TO THE MOST ENDURING MOTOR ECONOMY EVER KNOWN—THE EXCLUSIVE COMBINATION OF TIMKEN *POSITIVELY ALIGNED ROLLS*, TIMKEN TAPERED CONSTRUCTION, AND TIMKEN-MADE ELECTRIC FURNACE STEEL

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8 inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. These preferentials increased by one extra 5 per cent in meeting complications.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

⅛ and ¼-inch	+11	+39
⅜-inch	22	2
½-inch	28	11
¾-inch	30	13
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
7 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+19	+54
⅜-inch	21	7
½-inch	28	12
¾-inch	30	14
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3½ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot	.20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot.	20c
Plates ordered 7.65 pounds per square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates	1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with reentrant angles)

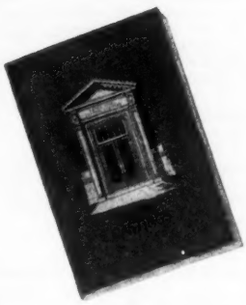
Additional extra ..... .10c

Sivyer Castings Can Be Forged and Welded

SIVYER CASTINGS
DEPENDABLE

Building Up Sales in the Field for the Manufacturer

When the manufacturer's reputation, goodwill, and sales depend on the quality of the parts put in his product, it pays to build with the best. Two castings, like the one above, carry almost the entire loading strain and weight of the well-known Joy coal loader—because of lower maintenance costs and fewer delays for breakages this loader is used for 42% of 61 different mine operations. Naturally the manufacturer of any machine so popular, will invariably turn to castings' source that can meet the most exacting demands. This may explain why the important part shown above is cast in Sivyer Electric Steel. If you are having trouble with cast parts and are interested in strengthening your position with the buyers in the field, Sivyer service may help you, too.



On many parts Alloy Castings are cutting direct costs or establishing new service records—and manufacturers are awakening to their tremendous possibilities.

Based upon more than 15 years of pioneering and making of Alloy castings, this booklet can help every manufacturer who is interested in getting new casting performance and costs.

Send for the booklet—there is no obligation.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

"Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertisers and by referring to advertisement you can get full particulars about products.

ABRASIVES
Pittsburgh Grinding Wheel Co. Rochester, Pa.

ABRASIVE (Polishing)
Norton Co., Worcester, Mass.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 12th and Etna Sts., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

AIR FILTERS
Midwest Air Filters, Inc., Bradford, Pa.

ALLOYS
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Summerill Tubing Co., Bridgeport, Pa.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Pittsburgh Annealing Box Co., 801 Beaver Ave., N. S., Pittsburgh, Pa.
Riter-Conley Co., Oliver Bldg., Pittsburgh, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., The, 3675 E. 78th St., Cleveland, O.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
National Tube Co., Frick Bldg., Pittsburgh, Pa.

BABBITT METAL
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.

BALING PRESSES
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Welded Iron and Steel)
Akron-Selle Co., Akron, O.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARROWS
Sterling Wheelbarrow Co., Milwaukee, Wis.

BARS (Alloy)
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Wheelock, Lovejoy & Co., Inc., 128 Sidney St., Cambridge, Mass.

BARS (Concrete Reinforcing)
Bethlehem Steel Co., Bethlehem, Pa.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Migret, Rene, 7 Boulevard Defontaine, Charleroi, Belgium
Ryerson, Jos. T., & Son., Inc., 16th and Rockwell Sts., Chicago, Ill.

BARS (Iron and Steel)
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Keystone Drawn Steel Co., Spring City, Pa.
Migret, Rene, 7 Boulevard Defontaine, Charleroi, Belgium
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS, STEEL (Electric Furnace)
Timken Roller Bearing Co., The, Canton, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Blystone Mfg. Co., Ironton St., Cambridge Springs, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Migret, Rene, 7 Boulevard Defontaine, Charleroi, Belgium
Phoenix Iron Co., The, 20 So. 15th Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

BEARINGS (Ball)
Hoover Steel Ball Co., Ann Arbor, Mich.
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Motor)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS, (Oilless)
Rhoades, R. W., Metaline Co., Inc., Rhoades Bldg., Long Island City, N. Y.

BEARINGS (Roller)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Tapered Roller
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Thrust)
Hoover Steel Ball Co., Ann Arbor, Mich.
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BELT FASTENERS
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.

BENCHES AND FRAMES (Drawing)
Morgan Construction Co., Worcester, Mass.

BENCHES AND FRAMES (Wire Drawing)
Vaughn Machinery Co., Cuyahoga Falls, O.

See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above